

## CROSS-SECTIONAL ANALYSIS OF MOTOR FITNESS COMPONENTS IN CHILDREN FROM 14-17 YEARS OF AGE

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### ABSTRACT

*The present study was undertaken to cross sectionally analyse the motor fitness components in tribal children of 14 to 17 years of age. Two hundred and forty students boys with all age groups having equal representation of 60 subjects each, ranging in age between 14 to 17 years, studying in senior secondary Schools of Jabalpur District run by the Tribal Welfare Department of Madhya Pradesh were selected at random as subjects for this study. The subjects were tested within two months of their birth days. All the subjects were tested in pull-ups bent knee sit-ups for one minute, standing broad jump, 50 meter dash, shuttle run and 600 yard run/walk to collect data for various motor fitness components in boys. For testing the significance of difference among the mean in different motor fitness components of various age groups an analysis of variance was computed for each test item, separately. The level of significance chosen was .05. The analysis of data using analysis of variance and scheffe's test clearly revealed that difference exists among different age groups in selected motor fitness components and the performance of the subjects improved with age. Further more no significant improvement was found in case of 50 meter dash between ages fourteen and fifteen and fifteen and sixteen? Sit ups ages fourteen and fifteen; standing broad jump between ages fourteen and fifteen, fifteen and sixteen, pull ups ages fourteen and fifteen, and sixteen and seventeen/ shuttle run ages fourteen and sixteen and fifteen and sixteen? 600 yard run/walk between ages fourteen and fifteen, fourteen and sixteen and fifteen and sixteen,*

*Keywords:: Motor fitness, Cross-sectional, Analysis, Children, components .*

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## INTRODUCTION

The human body and its efficiency in different situations is perhaps the most important single factor in the history of mankind. According to Miller and Allen "People are designed for physical activity. In primitive age. Only fittest could survive the rest perhaps. People had to exert, sometime whole day, running after animals for their food, those who could not resist hostile weather died. Often they were closed and attacked by wild animals. Primitive people had to run, climb and jump in order to meet their day to day needs and escape constant threats to their lives. Those who could not perform these motor fitness components satisfactorily got finished. There were frequent fight with different groups of people. All these demand ~ a real powerful and agile body.

The primitive games were taken from human activities and were means of preparing youths for adult life. Though physical fitness in primitive society was must for survival yet physical activities like games and dances etc. were not so organised. The organised activities started later when people went for settled life.

Nixon and Cozens described early men as physical educators. They developed physical skills involving running, jumping, throwing and climbing etc, in youth for survival components of physical fitness used by primitive men are used even today. Nexon and Jewett stated a "sound mind in a sound body" is a short but full description of a happy state in this word; he, that has these two, has little more to wish for..

Modern civilization has made life soft and luxurious. The diminished physical efforts and artificial life is responsible for physically weak population people today, lack both strength and endurance. The average man spends more time in attending his automobiles than in attending his body.

Modern age is an age of technology which inhibits physical activity. Machines are used to perform much of our work and we are forced to lead a sedentary life. Our life span is increasing but physical fitness is deteriorating. Most of our leisure time is also passed in a very inactive way sitting before television .

As in primitive society the fitness is very much essential in modern age also. However, the reasons for the two are entirely different. Today fitness is needed for top level performance in sporting activities and maintaining good health Now a days the level of competitions have reached the nerve breaking stage only superbly fit athletes, players or team can think of achieving success at high levels .

School children need optimum physical fitness. In physical education curriculum fitness programme must have its due place and children must be encouraged. Many complexes are easily overcome by success in physical activities. In childhood and adolescence periods, most often physical inaptitude creates inferiority complex in an individual. Athletic success can help in getting rid of it and enhances ones self esteem which ultimately depends upon the degree of physical fitness of that individual<sup>8</sup>.

An effectiveness of many physical performances is related to various basic traits found in boys and girls including their maturation, body size and physique type. Many of these traits are related to heredity. Others much as body weight, have hereditary implication but may also be affected by environmental influences, including the nature and amount of exercise nutritional practices and health habitués.

An important aspect of the organic area has to do with growth and development. Although growth and development in general follow a pattern, there are wide variations and differences within this pattern while growth is generally viewed as increase in height, weight and size/ development has to do more with functioning of body man.

There are many factors which influence growth basically heredity furnishes the frame of reference for times along which growth and development takes place. Important as heredity is in the growth and development of the individual, there are wide limits within which environmental factors may become influential. Perhaps heredity does set the boundaries but environment and the impact of nature dictate how one falls within these limits. Environmental factors which can significantly influence the growth and development are: nutrition climate, outdoor living, fresh air, sunshine, exercise and rest.

The dominance of different components of motor fitness is not uniform in various activities of game and sports. There are certain activities in which speed is dominating factors, in some sports strength dominates whereas in a large number of activities endurance is limiting factors. Therefore, after assessing the variation among components of motor fitness of children, the teacher of physical education will be in a better position to group the children according to their ages for effective participation in physical education activities.

Therefore, the study of Learner is highly specific to the learning situation for the most effective assessment of the learner. Each teacher must individually measure and evaluate the characteristics and ability of the group for which he is responsible.

The sequence of physical growth and the sequence of development in gross motor performance are concurrent developmental phenomenon. It is, therefore believed that knowledge of these sequences and their relationship would assist the teacher of physical education to provide activities conducive to the pupil various test items but no objective measure was available to make sure that each child performed to his maximum while under going to test,

The purpose of the present study was undertaken to cross sectionally analyse the motor fitness components in tribal children of 14 to 17 years of age.

## **METHODOLOGY**

### **Selection of Subjects**

Boys studying in various senior Secondary School of Jabalpur District Tribal Welfare Department of Madhya Pradesh were selected as the subjects of the study. The subjects were classified into age groups after obtaining the data of birth of each boy from the school records. Sixty Boys in each age group from 14 to 17 years were selected at random.

### **Criterion Measures**

1. Number of correctly executed push-ups,
2. Maximum number of correctly executed bent-knee sit-ups in one minute.
3. Time taken to shuttle a distance of ten meters four - times recorded to the nearest 1/10 of second.
4. Maximum distance jumped and recorded to the nearest centimeter in standing broad jump.
5. Time taken to run a distance of 50 meters as fast as possible recorded to the 1/10th of a second.
6. Time taken to run/walk a distance of 600 yards recorded to the nearest 1/10th of a second.

### **Procedure**

The test were administered to the subjects at the play ground of their schools during morning and evening playing houses. Before administering the test subject were given proper warming up under the supervision of the research scholar.

### **Scoring of Data**

All the subjects were tested on pull ups. Bent knee sit ups, standing Broad Jump, 50 meter Dash, shuttle run and 600 yard Run/Walk Test and the Scoring of data for each test was done as follows-

Number of correctly executed pull ups, maximum number of correctly executed bent knee sit-ups in one minute, time to shuttle a distance of ten meter four times recorded nearest to 1/10th of a second, maximum distance jumped and recorded to the nearest centimeter, time taken to run a distance of 50 meter as fast as possible recorded 1/10th of a second, time taken to run/walk a distance of 600 yards recorded to nearest 1/10th of a second, were recorded each of the subjects as his score in each test. For the purpose of making comparison among various age groups raw scores were directly used,

### Statistical Analysis

For finding out the significance of difference of means among the various age groups an analysis of variance (F ratio) was used which was followed by Scheffe's Test of post-hoc comparison »s to determine the significance of difference between paired means.

### Reliability of Data

Sixty subjects were selected at random from all the age groups taken together and the reliability of performance in different components of various age groups on each test item separately was established by using test-retest method\* The tests were repeated on two days with an interval of one day in between the reliability co-efficient of test-retest scores are presented in Table 1.

**TABLE 1**  
**RELIABILITY COEFFICIENT OF TEST-RETEST SCORES OF VARIOUS TEST ITEMS**

| S.NO. | Tests               | Correlation Coefficient |
|-------|---------------------|-------------------------|
| 1.    | Pull ups            | .90*                    |
| 2     | Sit ups             | .89*                    |
| 3     | Standing Broad Jump | .84*                    |
| 4     | 600 Yards Run/Walk  | .79*                    |
| 5     | 50 Meter Dash       | .81*                    |
| 6.    | Shuttle Run         | .84*                    |

## RESULTS AND DISCUSSION

For testing the significances of difference among the means in different Motor components of various age groups an analysis of variance was computed for each test item separately, as the mean differences in all the criterion variables showed significant t- ratio. To find which of the differences among the paired means were statistically significant, the Scheffe's test was applied and the data pertaining to this is presented in Table 2-13.

**TABLE 2**  
**ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCES OF DIFFERENT AGE GROUPS ON SPEED**

| Sources of Variance | df  | Sum of Squares | Mean Square | F-ratio |
|---------------------|-----|----------------|-------------|---------|
| Within Groups       | 3   | 102.25         | 0.43        | 13.12*  |
| Between Groups      | 236 | 17.04          | 6.68        |         |

\*Significant at .05 level,  $F_{.05}(3,236)=2.68$

It is evident from Table 2 that the significant difference existed among the means of various age groups children on speed, as the F-ratio of 13.12 was high than the required value  $F_{.05}(2,236)=2.68$ . In order to find out, which of the differences among the paired means were statistically significant the Scheffes's Test was applied and data pertaining to this have been presented in Table 3

**TABLE 3**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN THE ORDERED PAIRED MEANS ON**  
**SPPED FOR DIFFERENT AGE GROUPS**

| Mean Scores |          |          |          |                        |      |
|-------------|----------|----------|----------|------------------------|------|
| 14 Years    | 15 Years | 16 Years | 17 Years | Paired Mean Difference | C.I. |
| 8.39        | 8.37     | -        | -        | 0.05                   | 0.04 |
| 8.39        | -        | 8.33     | -        | 0.06*                  | 0.04 |
| 8.39        | -        | -        | 7.75     | 0.64*                  | 0.04 |
| -           | 8.37     | 8.33     | -        | 0.04                   | 0.04 |
| -           | 8.37     | -        | 7.75     | 0.62*                  | 0.04 |
| -           | -        | 8.33     | 7.75     | 0.58*                  | 0.04 |

\*Significant at .05 level

**TABLE 4**  
**ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCES OF DIFFERENT AGE**  
**GROUPS ON ABDOMINAL STRENGTH**

| Sources of Variance | df  | Sum of Squares | Mean Square | F-ratio |
|---------------------|-----|----------------|-------------|---------|
| Within Groups       | 3   | 5720.14        | 24.14       | 49.38*  |
| Between Groups      | 236 | 3591.00        | 1197.00     |         |

\*Significant at .05 level,  $F_{05}(3,236) = 2.68$

It is evident from Table 4 that the significant difference existed among the means of various age groups children on abdominal strength, as the F-ratio of 49.38 was high than the required value  $F_{05}(2,236) = 2.68$ . In order to find out, which of the differences among the paired means were statistically significant the Scheffes's Test was applied and data pertaining to this have been presented in Table 5

**TABLE 5**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN THE ORDERED PAIRED MEANS ON**  
**ABDOMINAL STRENGTH FOR DIFFERENT AGE GROUPS**

| Mean Scores |          |          |          |                        |      |
|-------------|----------|----------|----------|------------------------|------|
| 14 Years    | 15 Years | 16 Years | 17 Years | Paired Mean Difference | C.I. |
| 16.57       | 18.80    | -        | -        | 2.23                   | 2.43 |
| 16.57       | -        | 23.13    | -        | 6.56*                  | 2.43 |
| 16.57       | -        | -        | 26.58    | 10.01*                 | 2.43 |
| -           | 18.80    | 23.13    | -        | 4.33*                  | 2.43 |
| -           | 18.80    | -        | 26.58    | 7.78*                  | 2.43 |
| -           | -        | 23.13    | 26.58    | 3.45*                  | 2.43 |

\*Significant at .05 level

**TABLE 6**  
**ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCES OF DIFFERENT AGE GROUPS ON LEG POWER**

| Sources of Variance | df  | Sum of Squares | Mean Square | F-ratio |
|---------------------|-----|----------------|-------------|---------|
| Within Groups       | 3   | 202170.80      | 856.65      | 11.82*  |
| Between Groups      | 236 | 30375.60       | 10125.20    |         |

\*Significant at .05 level,  $F_{.05}(3,236) = 2.68$

It is evident from Table 6 that the significant difference existed among the means of various age groups children on leg power, as the F-ratio of 11.82 was high than the required value  $F_{.05}(2,236) = 2.68$ . In order to find out, which of the differences among the paired means were statistically significant the Scheffes's Test was applied and data pertaining to this have been presented in Table 7

**TABLE 7**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN THE ORDERED PAIRED MEANS ON LEG POWER FOR DIFFERENT AGE GROUPS**

| Mean Scores |          |          |          |                        |       |
|-------------|----------|----------|----------|------------------------|-------|
| 14 Years    | 15 Years | 16 Years | 17 Years | Paired Mean Difference | C.I.  |
| 155.48      | 162.62   | -        | -        | 7.14                   | 14.47 |
| 155.48      | -        | 176.85   | -        | 21.37*                 | 14.47 |
| 155.48      | -        | -        | 191.06   | 35.58*                 | 14.47 |
| -           | 162.62   | 176.85   | -        | 14.23                  | 14.47 |
| -           | 162.62   | -        | 191.06   | 28.44*                 | 14.47 |
| -           | -        | 176.85   | 191.06   | 14.21                  | 14.47 |

\*Significant at .05 level

**TABLE 8**  
**ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCES OF DIFFERENT AGE GROUPS ON ARM AND SHOULDER STRENGTH**

| Sources of Variance | df  | Sum of Squares | Mean Square | F-ratio |
|---------------------|-----|----------------|-------------|---------|
| Within Groups       | 3   | 2498.85        | 10.58       | 78.35*  |
| Between Groups      | 236 | 2486.85        | 828.95      |         |

\*Significant at .05 level,  $F_{.05}(3,236) = 2.68$

It is evident from Table 8 that the significant difference existed among the means of various age groups children on arm and shoulder strength, as the F-ratio of 78.35 was high than the required value  $F_{.05}(2,236) = 2.68$ . In order to find out, which of the differences among the paired means were statistically significant the Scheffes's Test was applied and data pertaining to this have been presented in Table 9

**TABLE 9**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN THE ORDERED PAIRED MEANS ON**  
**ARM AND SHOULDER STRENGTH FOR DIFFERENT AGE**  
**GROUPS**

| Mean Scores |          |          |          |                        |      |
|-------------|----------|----------|----------|------------------------|------|
| 14 Years    | 15 Years | 16 Years | 17 Years | Paired Mean Difference | C.I. |
| 6.55        | 7.43     | -        | -        | 0.88                   | 1.61 |
| 6.55        | -        | 13.26    | -        | 6.71*                  | 1.61 |
| 6.55        | -        | -        | 13.53    | 6.98*                  | 1.61 |
| -           | 7.43     | 13.26    | -        | 5.83*                  | 1.61 |
| -           | 7.43     | -        | 13.53    | 6.10*                  | 1.61 |
| -           | -        | 13.26    | 13.53    | 0.27                   | 1.61 |

\*Significant at .05 level

**TABLE 10**  
**ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCES OF DIFFERENT AGE**  
**GROUPS ON AGILITY**

| Sources of Variance | df  | Sum of Squares | Mean Square | F-ratio |
|---------------------|-----|----------------|-------------|---------|
| Within Groups       | 3   | 207.09         | 0.88        | 13.78*  |
| Between Groups      | 236 | 36.36          | 12.12       |         |

\*Significant at .05 level,  $F_{05}(3,236) = 2.68$

It is evident from Table 10 that the significant difference existed among the means of various age groups children on agility, as the F-ratio of 13.78 was high than the required value  $F_{05}(2,236) = 2.68$ . In order to find out, which of the differences among the paired means were statistically significant the Scheffes's Test was applied and data pertaining to this have been presented in Table 11.

**TABLE 11**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN THE ORDERED PAIRED MEANS ON**  
**AGILITY FOR DIFFERENT AGE GROUPS**

| Mean Scores |          |          |          |                        |      |
|-------------|----------|----------|----------|------------------------|------|
| 14 Years    | 15 Years | 16 Years | 17 Years | Paired Mean Difference | C.I. |
| 11.79       | 11.73    | -        | -        | 0.06                   | 0.46 |
| 11.79       | -        | 11.64    | -        | 0.15                   | 0.46 |
| 11.79       | -        | -        | 10.87    | 0.92*                  | 0.46 |
| -           | 11.73    | 11.64    | -        | 0.09                   | 0.46 |
| -           | 11.73    | -        | 10.87    | 0.86*                  | 0.46 |
| -           | -        | 11.64    | 10.87    | 0.77*                  | 0.46 |

\*Significant at .05 level

**TABLE 12**  
**ANALYSIS OF VARIANCE OF THE MEAN DIFFERENCES OF DIFFERENT AGE GROUPS ON CARDIOVASCULAR ENDURANCE**

| Sources of Variance | df  | Sum of Squares | Mean Square | F-ratio |
|---------------------|-----|----------------|-------------|---------|
| Within Groups       | 3   | 19.66          | 0.08        | 6.35*   |
| Between Groups      | 236 | 31.64          | 0.55        |         |

\*Significant at .05 level,  $F_{.05}(3,236) = 2.68$

It is evident from Table 12 that the significant difference existed among the means of various age groups children on cardiovascular endurance, as the F-ratio of 6.35 was high than the required value  $F_{.05}(2,236) = 2.68$ . In order to find out, which of the differences among the paired means were statistically significant the Scheffes's Test was applied and data pertaining to this have been presented in Table 13

**TABLE 13**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN THE ORDERED PAIRED MEANS ON CARDIOVASCULAR ENDURANCE FOR DIFFERENT AGE GROUPS**

| Mean Scores |          |          |          |                        |      |
|-------------|----------|----------|----------|------------------------|------|
| 14 Years    | 15 Years | 16 Years | 17 Years | Paired Mean Difference | C.I. |
| 2.26        | 2.20     | -        | -        | 0.06                   | 0.11 |
| 2.26        | -        | 2.18     | -        | 0.08                   | 0.11 |
| 2.26        | -        | -        | 2.05     | 0.21*                  | 0.11 |
| -           | 2.20     | 2.18     | -        | 0.02                   | 0.11 |
| -           | 2.20     | -        | 2.05     | 0.15*                  | 0.11 |
| -           | -        | 2.18     | 2.05     | 0.13*                  | 0.11 |

\*Significant at .05 level

## DISCUSSION

The analysis of data using analysis of variance (F-ratio) and scheffe's test of post-hoc comparison, shows that difference exists among different age groups on selected motor fitness components and performance of subjects on various components shows improvement with the increase of age.

Further more, no significant, improvement was noticed in following variables with respect to age. In case of 50 meter dash between ages fourteen and fifteen and fifteen and sixteen, sit ups ages fourteen and fifteen, standing broad jump ages fourteen and fifteen, fifteen and sixteen. Pull ups between ages fourteen and fifteen and sixteen and seventeen, shuttle run ages fourteen and fifteen fourteen and sixteen and fifteen and sixteen; 600 yards run/walk ages fourteen and fifteen\* fourteen and sixteen and fifteen and sixteen.

Increase in body weight would normally reflect increases in the amount of muscle tissue. This increase in muscle tissue coupled with increase lever length resulting from growth in height should result in greater power and thus increase in motor achievement. Growth in height in school years is apparently reflected adequately by increase in weight. With this constant increase in body size and strength, it is also to be expected that there are also consistent improvement in the basic skills of running, jumping, and throwing as the age increases.

Speed with which an individual can run depends upon the length of stride and frequency of stride, steady increase in body size and its components increases in level, length and strength provide increase length and tempo to the running stride. It is also in part, a reflection of an increase in ability to run greater distances with increasing age.

Agility depends upon number of factors, namely strength, running speed and speed of movement, balance and coordination, since the above motor components increase with age, this in turn also increases agility.

Therefore improvement of performance in events dominated by strength, speed and endurance may be attributed to the reasons given above.

## CONCLUSIONS

Within the limitations of the present study following conclusions may be drawn:

1. Performance of boys ranging in age between fourteen and seventeen years in Motor fitness components increased with increase in age.
2. Boys of fourteen, fifteen and sixteen years can be grouped together in activities requiring, running speed and leg power.
3. In activities requiring change of body position and direction with speed and cardiovascular endurance the boys between age groups of fourteen to sixteen can be classified together.
4. In activities requiring abdominal strength in boys of fourteen and fifteen years can participate together.
5. Activities involving holding, supporting and pulling of body in hanging situation the boys of fourteen and fifteen and sixteen and seventeen can be grouped together.

## RECOMMENDATIONS

In the light of the conclusions drawn above, it may be recommended that Age can be used as an effective basis for classification of tribal boys ranging in age between fourteen to seventeen years for participation in various physical education activities dominated by Motor fitness components. A longitudinal project on tribal students extended from age fourteen year to 18 years involving both the sexes may be undertaken so that the effect of growth and development on various motor fitness components, within each sex and between the sexes may be identified. A similar study may be undertaken involving different anthropometric measurements, i.e. height, weight and measurements of different parts of the body in addition to the age of the subject.

## REFERENCES

- Barrow, Harold M.** Man and Movement : Principles of Physical Education 2nd ed. Philadelphia : Lea and Febiger 1977.
- Clarke H. Harrison and Clarke, H. D.** Advance Statistics supplement to Research process in Health, Physical Education & Recreation. New Jersey: Englewood Cliffs Prentice Hall Inc., 1970.
- Clarke, H. Harrison.** Application of Measurements to Health and Physical Education. New Jersey : Englewood Cliffs : Prentice Hall Inc., 1977.
- Featherstone, Donald F.** Mature Mans Guide to Physical Fitness . London : Thomson's Publishers Ltd, 1965.
- Jones Kenneth L., Shainberg W. Louis., and Byer, Curtis O.** Total Fitness . San Francisco:: Canfield Press 1972.
- Larson, Leonard A.** Foundation of Physical Activity. New York : The Mc Millen Co. Inc. 1976.
- Nixon, Eugene W. and Cozens, Frederick W..** An Introduction to physical Education. Philadelphia : W, B. Saunders, 1968.
- Nixon, Jone P. and Jewett, Ann E.** An Introduction to Physical Education. Philadelphia : W. B.. Saunders Co., 1969.

## **EFFECT OF SIX WEEK AEROBIC DANCE PROGRAM ON SELECTED PHYSICAL FITNESS COMPONENTS OF MALE SCHOOL GOING CHILDREN**

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### **ABSTRACT**

*The present study was designed to extend knowledge of the influence of aerobic dance on selected physical fitness level of male school going children. Sixty male students age 14 + randomly were selected from O.P. Jindal school, Raigarh (Chhattisgarh) and divided in two equal groups: Experimental Group A (N=30) and Control Group B (N=30). Group 'A' will under go a program selected Aerobic Dance and group 'B' will be control group. Group 'A' followed the program of instruction for a period of 6 weeks and training was carried for 6 weeks. Standing Broad Jump for explosive strength of leg ,2. Sit-Up test for strength endurance of abdomen, 12 min. Run & Walk test for Cardiovascular Endurance and Sit & Reach Test to access the Flexibility of lower back and hamstring muscles were administered upon all the subject at the beginning (pre- test) and at the end of experimental period, after six weeks (post-test). The results of study revealed that male School children engaged in aerobic dance activity demonstrated higher Strength endurance, Cardiovascular-endurance; and Flexibility. The study also confirmed the positive effects on Strength endurance, Cardiovascular-endurance, and Flexibility over six Weeks.*

**Key words:** Aerobic dance, Physical fitness, Children , Effect, Training Program.

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## INTRODUCTION

All children should participate in regular physical activity and sport experiences, especially in quality, adult supervised activities at home, at school and in after-school programs. A wide range of activities should be available, including both individual and group experiences and cooperative vs. competitive ones. Moderate and regular physical activity can promote psychological and emotional well being, including reduced depression. Equal and safe opportunities and environments should be provided for both boys and girls to participate in a full range of physical fitness and sport activities.

All areas of fitness are affected by regular physical activity but three that seem to be especially impacted by regular physical activity are muscular fitness, cardiovascular fitness (aerobic fitness) and anaerobic power. For most girls, muscular fitness increases until about age 14, but for sedentary girls it may slow more rapidly or even decrease (Blimkie, 1989).

One of the primary advantages of active physical participation for children seems to be directly linked to lower body fat and a better ratio of lean to fat mass. Children with above average levels of body fat generally have higher total cholesterol, and LDL cholesterol and often-associated elevated blood pressure (Williams et. al., 1992).

The involvement of girls in sport is largely impacted by the attitudes of parents and other role models (teachers, family). If parents support their involvement and encourage it, girls can benefit in many positive ways from sport and physical activity. There appears to be a strong interaction between how girls perceive their success in sport, and how others influence that perception (Weiss, & Ebbeck, 1996).

Most girls participate in sport to have fun, improve skills, be with friends and become physically fit while enjoying the challenges and being successful (Weiss & Petlichkoff, 1989).

Fitness centers offer a variety of aerobic exercises to music as part of their exercise programs, in the form of various organized physical activities. What is characteristic about this kind of exercise is that all of the participants in the aerobic exercise program exercise to the same rhythm and to the same tempo, and thus activate muscles of various parts of the body, enhances the harmonious functioning of all organs and systems of organs.

The present study was designed to extend knowledge of the influence of aerobic dance on selected physical fitness level of school going male children. It was hypothesized that there would be no effect of aerobic dance on selected physical fitness profile of school going male children.

## METHODOLOGY

### Subjects

Sixty male students age 14 + randomly were selected from O.P. Jindal school, Raigarh (Chhattisgarh) and divided in two equal groups, which were treated as Experimental Group A (N=30) and Control Group B (N=30). Group 'A' will under go a program selected Aerobic Dance and group 'B' will be control group. Group 'A' followed the program of instruction for a period of 6 weeks and training was carried for 6 weeks.

### Physical Fitness Tests and their Variables

The Standing Broad Jump for explosive strength of leg, One Minute maximum Sit-Up test for strength endurance of abdomen, 12 min. Run & Walk test for Cardiovascular Endurance, and Sit & Reach Test to access the Flexibility of lower back and hamstring muscles were conducted upon all the subjects.

### Criterion Measures

Measurement for various variables were taken at the beginning (pre- test) and at the end of experimental period, after six weeks (post-test). The data was collected before and after six weeks of experimental period by using standard tests.

Maximum horizontal distance jumped from ground level and reach at same ground level(standing broad jump) was recorded in to nearest Meter-centimeter, Number of correctly executed sit-ups performed in one minute, 12 min. Run/Walk test was measured in meters and Flexibility was measured in centimeters.

### Selection of Aerobic Dance Exercises

The selection of the aerobic dance in the form of rhythmic activity included only five exercises standing, marching, side to side, side to side double step, Knee up were made on the basis of expert advice. The aerobic dance practices selected for the study were accepted as rational for the purpose of this study, as per the available literature and expert guidance on theory and practice of aerobic dance. The aerobic dance practices were scheduled for group 'A' instead of the daily physical training periods. The training schedule for the period of 60 minutes in a day for the duration of six weeks. of aerobic dance practices for the experimental group is given in Appendix "A"

## RESULTS AND DISCUSSION

In order to find out the significance of difference in the mean scores gained by each group for selected variable, means, standard deviations, and t-ratios were computed for obtained data by using SPSS 16.0 program. The difference of initial and finals scores was taken into the account. The level of significance was set at .05 level of confidence and data pertaining to this have been presented in Table 1 to 5.

**TABELE 1**  
**DESCRIPTIVE STATISTICS OF PHYSICAL FITNESS COMPONENTS OF MALE STUDENTS OF EXPERIMENTAL AND CONTROL GROUPS ON PRE-TEST AND POST-TEST**

| Test Variables      | Treatment | Experimental Group<br>(N=30) |       | Control Group<br>(N=30) |       |
|---------------------|-----------|------------------------------|-------|-------------------------|-------|
|                     |           | Mean                         | SD    | Mean                    | SD    |
| Standing broad jump | Pre-test  | 01.58                        | 00.04 | 01.57                   | 00.06 |
|                     | Post-test | 01.59                        | 00.08 | 01.58                   | 00.06 |
| Bent knee sit-ups   | Pre-test  | 27.60                        | 03.92 | 27.47                   | 01.43 |
|                     | Post-test | 36.67                        | 02.91 | 31.03                   | 03.06 |
| 12 Minute run/walk  | Pre-test  | 1595.10                      | 27.52 | 1583.17                 | 11.63 |
|                     | Post-test | 1635.87                      | 28.38 | 1605.20                 | 10.63 |
| Sit and reach       | Pre-test  | 28.90                        | 02.69 | 28.43                   | 02.45 |
|                     | Post-test | 32.63                        | 02.82 | 30.97                   | 02.71 |

The mean scores of various components of physical fitness on pre-test and post-test of experimental and control group of male students in O.P. Jindal School, Raigarh have been depicted in figures 1 to 4.

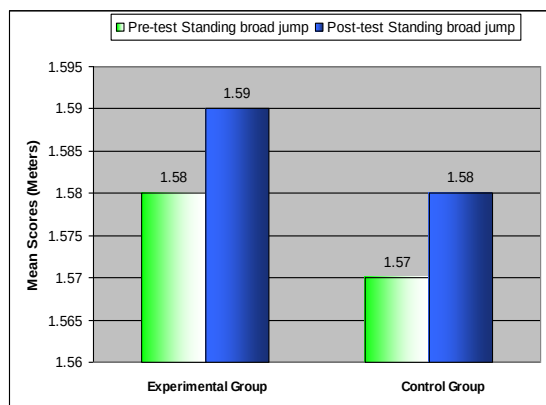


Figure 1: Mean Scores of Standing Broad Jump on Pre-test and Post-test of Experimental and Control Group Male School Going children.

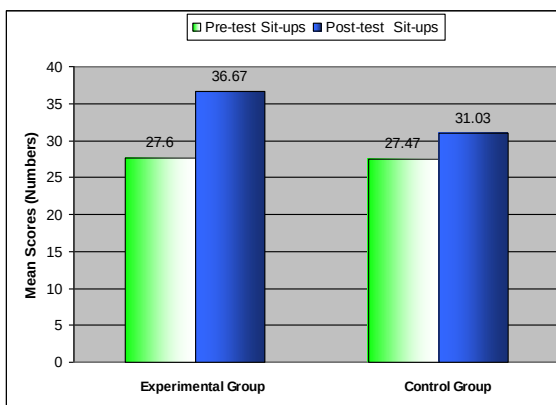


Figure 1: Mean Scores of Sit-Ups on Pre-test and Post-test of Experimental and Control Group Male School Going children.

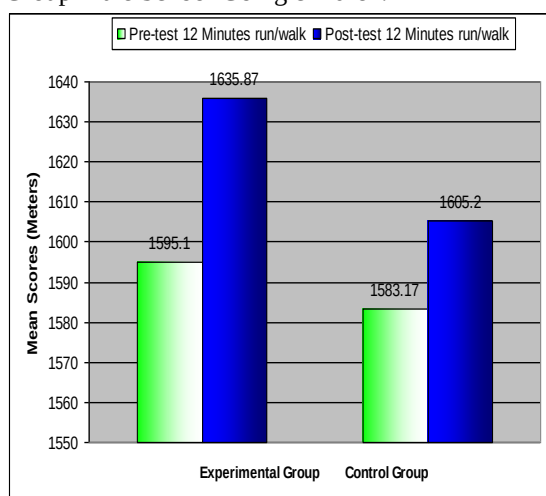


Figure 1: Mean Scores of Run/Walk Performance on Pre-test and Post-test of Experimental and Control Group Male School Going children.

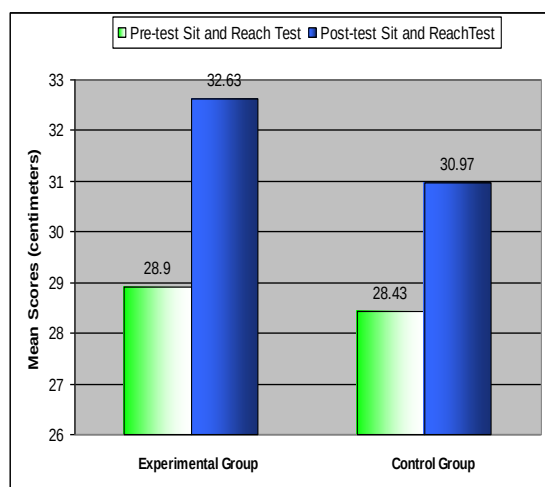


Figure 1: Mean Scores of Sit & Reach Performance on Pre-test and Post-test of Experimental and Group Male School Going children.

TABLE 2

**SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST MEAN SCORES OF STANDING BROAD JUMP OF EXPERIMENTAL AND CONTROL GROUP MALE SCHOOL GOING CHILDREN**

| Test      | Groups             | Mean | M.D. | $\sigma_{DM}$ | t-value |
|-----------|--------------------|------|------|---------------|---------|
| Pre-test  | Experimental group | 1.58 | .012 | .013          | 0.93    |
|           | Control Group      | 1.57 |      |               |         |
| Post-test | Experimental group | 1.59 | 013  | .018          | 0.78    |
|           | Control Group      | 1.58 |      |               |         |

Insignificant level at 0.05.,  $t_{.05}(58) = 2.00$

It is evident from Table 2, that there was no statistically significant difference between the pre-test means of standing broad jump of experimental group and control group, as the obtained t-value of 0.93 was less than the calculated value of  $t_{.05}(58)=2.00$ . This implies that both the groups are homogeneous with respect to Standing Broad Jump performance at pre-test

point. Similarly, the significant difference was also not found between the post-test means of standing broad jump of experimental group and control group, as the obtained t-value of 0.78 was less than the calculated value of  $t_{0.05(58)}=2.00$ . This suggests that there is no effect of treatment on the standing broad jump test performance i.e. explosive strength of the subjects.

**TABLE 3**  
**SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST MEAN SCORES OF SIT-UPS OF EXPERIMENTAL AND CONTROL GROUP**  
**MALE SCHOOL GOING CHILDREN**

| Test      | Groups             | Mean  | M.D. | $\sigma_{DM.}$ | t-value |
|-----------|--------------------|-------|------|----------------|---------|
| Pre-test  | Experimental group | 27.60 | .133 | .762           | 0.18    |
|           | Control Group      | 27.47 |      |                |         |
| Post-test | Experimental group | 36.67 | 5.63 | .770           | 7.32*   |
|           | Control Group      | 31.03 |      |                |         |

\*Significant level at 0.05,  $t_{0.05(58)} = 2.00$

It is evident from Table 3, that there was no statistically significant difference between the pre-test means of sit-ups of experimental group and control group, as the obtained t-value of 0.18 was less than the calculated value of  $t_{0.05(58)}=2.00$ . This implies that both the groups are homogeneous with respect to sit ups performance at pre-test point. Where as, the significant difference was found between the post-test means of sit-ups of experimental group and control group, as the obtained t-value of 7.32 was higher than the calculated value of  $t_{0.05(58)}=2.00$ . This suggest that there is effect of treatment on the sit ups test performance i.e. strength endurance of the subjects at post-test point.

**TABLE 4**  
**SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST MEAN SCORES OF TWELVE MINUTES RUN/WALK OF EXPERIMENTAL AND CONTROL GROUP**  
**MALE SCHOOL GOING CHILDREN**

| Test      | Groups             | Mean    | M.D.  | $\sigma_{DM.}$ | t-value |
|-----------|--------------------|---------|-------|----------------|---------|
| Pre-test  | Experimental group | 1595.10 | 11.93 | 5.45           | 2.19*   |
|           | Control Group      | 1583.17 |       |                |         |
| Post-test | Experimental group | 1635.87 | 30.67 | 7.47           | 4.11*   |
|           | Control Group      | 1605.20 |       |                |         |

\*Significant level at 0.05.,  $t_{0.05(58)} = 2.00$

It is evident from Table 4, that there was statistically significant difference between the pre-test means of twelve minutes run/walk of experimental group and control group, as the obtained t-value of 2.19 was high than the calculated value of  $t_{0.05(58)}=2.00$ . This implies that both the groups are not homogeneous with respect to run and walk test performance at pre-test point. Similarly, the significant difference was also found between the post-test means of twelve minutes run/walk of experimental group and control group, as the obtained t-value of 4.11

was high than the calculated value of  $t_{.05(58)}=2.00$ . This suggest that there is an effect of treatment on the run and walk test performance i.e. endurance of the subjects.

**TABLE 5**  
**SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST MEAN SCORES**  
**OF SIT AND REACH OF EXPERIMENTAL AND CONTROL GROUP**  
**MALE SCHOOL GOING CHILDREN**

| Test      | Groups             | Mean  | M.D. | $\sigma_{DM}$ | t-value |
|-----------|--------------------|-------|------|---------------|---------|
| Pre-test  | Experimental group | 28.90 | .467 | .664          | 0.702   |
|           | Control Group      | 28.43 |      |               |         |
| Post-test | Experimental group | 32.63 | 1.66 | .714          | 2.33*   |
|           | Control Group      | 30.97 |      |               |         |

\*Significant level at 0.05,  $t_{.05(58)} = 2.00$

It is evident from Table 5, that there was no statistically significant difference between the pre-test means of sit and reach test of experimental group and control group, as the obtained t-value of 0.702 was less than the calculated value of  $t_{.05(58)}=2.00$ . This implies that both the groups are homogeneous with respect to sit and reach test performance at pre-test point. Where as, the significant difference was found between the post-test means of sit and reach test of experimental group and control group, as the obtained t-value of 2.33 was high than the calculated value of  $t_{.05(58)}=2.00$ . This suggest that there is an effect of treatment on the sit and reach test performance i.e. flexibility of the subjects.

## DISCUSSION

The present study confirmed the positive effects on Strength endurance, Cardiovascular-endurance, and Flexibility over six Weeks. Male School children engaged in aerobic dance activity demonstrated higher Strength endurance, Cardiovascular-endurance; and Flexibility. The results of the present study was partially supported by Hopkin (1999) and Rana, & Sharma (2008)

It was hypothesized that “There would no significant effect of aerobic dance exercise on selected physical fitness profile of male school going children” is partially accepted, as the positive effects was found on Strength endurance, Cardiovascular-endurance, and Flexibility parameters of physical fitness over six weeks school children engaged in aerobic dance activity.

## CONCLUSIONS

Within the frame-work of the present investigation, the following conclusions may be drawn:

1. There is significant effect of aerobic dance exercise on the Strength endurance Cardiovascular-endurance, and flexibility.
2. There was no significant effect on the parameters viz. Explosive strength. This study shows a significant improvement in almost all physical fitness can be achieved with a training program of aerobic dance exercise implemented at a school level.
3. Male School going children engaged in aerobic dance exercise demonstrated higher Strength endurance, Cardiovascular-endurance; and Flexibility.

## RECOMMENDATIONS

Further studies to classify fitness levels obtained by these programs based on more detailed analysis for training duration, training schedules as well as fitness indices will enable assessment of the most optimal training methods.

Additionally this methodology could be applied to a female student population to investigate any differences in response between genders to fitness training in other countries.

## REFERENCES

- Blimkie, C.J.R.** "Age and sex associated variation in strength during childhood: Anthropometric, morphologic, neuralgic, biomechanical, endocrinologic, and physical activity correlates". In C.V. Gisolfi & D. R. Lamb (Ed.), Perspectives in exercise science and sports medicine, 2 (1989) :99-163.
- Hopkins, David R.** "Effect of Low-Impact Aerobic Dance on 53 Sedentary Older Women". Journal of Sports Medicine and Physical Fitness 39 (1999) : 165-168.
- Rana, M. S. & Sharma R.** "The Effect of Rhythmic Activity on Selected Physiological and Physical fitness Profile of School Going Children" Research Journal of Physical Education and Sports Sciences 3 ( October, 2008) :1-25.
- Williams, D.P., Going, S. B., Lohman, T. G., Harsha, D.W., Srinivasan, S.R., Webber, L.S. & Berenson, G.S.** "Body fatness and risk for elevated blood pressure total cholesterol and serum lipoprotein ratios in children and adolescents". American Journal of Public Health 82 (1992) : 358-363.
- Weiss, M.R. & Petlichkoff, L..M.** "Children's Motivation for Participation in and Withdrawal from Sport: Identifying the Missing Links". Pediatric Exercise Science, 1 (1989) : 195-211.
- Weiss, M. R. & Ebbeck V. (1996).** "Self-esteem and Perceptions of Competence in Youth Sports: Theory, Research and Enhancement Strategies". Cited in The Child and Adolescent Athlete. (Oxford: England: Blackwell Scientific Ltd), 1996, pp.364-382

### Appendix "A"

#### Training Schedule

1. Assembly. 2. Warming up and stretching exercise 15 minutes
- 1st and 2nd weeks:** 1. 16 count exercise, 2. Total Practices: 6 minutes, 7 repetitions = 42 minutes, 3. Total Rest: 1.30 minutes, 6 between each repetitions = 1 minutes.
- 3rd and 4th weeks:** 1. 16 count exercise, 2. Total Practices: 6 minutes, 8 repetitions = 48 minutes, 3. Total Rest: 1 minute, 7 between each repetitions = 7 minutes.
- 5th and 6th weeks:** 1. 16 count exercise, 2. Total Practices: 6 minutes, 9 repetitions = 54 minutes, 3. Total Rest: .30 minutes, 8 between each repetitions = 4 minutes.

Experimental groups practiced selected Five aerobic dance exercise in the sports room specially allotted for experiment of O.P.Jindal school, Raigarh. The practice session was conducted for a period of 60 minutes every Monday to Saturday for the duration of six weeks.

The dose of the practice for aerobic dance was 1st and 2nd weeks six minutes seven repetition, 3rd and 4th weeks six minutes eight repetition and 5th and 6th weeks six minutes nine repetitions respectively and the total time for the daily practice by the experimental group was between 42 to 54 minutes. The time for rest was between 1.30 minute, 1 minute and 0.30 minute as prescribed by experts. All together, the practices were schedule for one hour every day in the morning.

## INVESTIGATION OF SPECIFIC PHYSICAL FITNESS AMONG MALE CRICKET PLAYERS

Dr. Ashish Kumar Nigam\*

### ABSTRACT

*The sum of five motor abilities namely speed, strength, flexibility, endurance and coordinative abilities and their complex form like strength, endurance, maximum strength, explosive strength, maximum speed and agility were the basic prerequisites of human motor action. and sports performance depends to a greater extent on these abilities. The purpose of study was to investigate and analyze the specific physical fitness of divisional level male cricket players. Fifty male cricket players of Jabalpur division were selected as subjects who played cricket matches during the divisional tournament held at Jabalpur (M.P.). The range of age of the subject is from 18-25 years. On the basis of Frank Tyson specific fitness test following physical components were selected for this study : Aerobic Fitness, Anaerobic Fitness, Flexibility, Speed And Agility, Muscular Endurance, Muscular Strength, and Muscular Power. To assess the specific physical fitness, the mean of scores of each component obtained by the players were compared with the norms constructed by Frank Tyson. The results of the present study indicated that the division level cricket players possessed fair specific physical fitness. In 12 minute Run Test, 40 Meter Sprint, Sit and Reach Test, Run a Three Test, Sit-ups and Vertical Jump Test the results were fair, where as in Step Test, Phosphate Recovery Test, Shoulder Hyper Extension Test, Fielding Agility and Hand Dynamometer Squeeze Test result were poor and in push ups and chin ups test results were good.*

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## INTRODUCTION

The physical fitness is the sum of five motor abilities namely speed, strength, flexibility, endurance and to coordinative abilities and their, complex form like strength endurance, maximum strength, explosive strength, maximum speed and agility are the basic prerequisites of human motor action. Therefore the sports performance is depend to a greater extent on these abilities. The improvement and maintenance of specific physical fitness or condition is the main aim of sports training. Each sport requires different type and level of specific fitness as a result different types of fitness training is requiring for different sports. Some sports like running requires a very high level of endurance and low level of other motor abilities, sports like shooting and archery do not require high level of physical fitness ( Singh, 1991).

Physical fitness is the capacity to carry out our various reasonable well forms of physical activities without being unduly tired and include qualities improvement to the individual's health and well being, regular participation in vigorous exercise increase physical fitness is desirable for full productive life, sedentary living habits and poor physical fitness have a negative impact on both health and daily living (Albara, 1947).

Every cricketer should Endeavour to become at least a reliable fielder just as keenly as he tries to become a good batsman, a good bowler, irrespective of what standard he may attain as a batsman or a bowler, his side is vigorously handicapped if he is lacking in fielding ability. He should specialized and become outstanding in particular position.

Today cricket is considered as an athletic activity, in cricket the demands of optimum physical fitness is increased. The level of performance is affected by the level of specific physical fitness. By likely to drop out of sports due to embarrassment, failure or possible injury.

A cricket player with a high degree of motor fitness is able to cope better with the demand of the game the onset of fatigue is the point at which skill standards drop, mental reactions become slower these the best condition. Proper conditioning is commonly recognized as one of the most important elements of any strenuous sport. Any cricketer who cannot functions at maximum efficiency throughout a contest will not be to help the team to attain its goals. Therefore, it must be a priority for any cricket coach to work with cricket player's specific fitness in peak physical condition.

Herman administered the AAHPER youth fitness test to 100 rural and 100 urban boys. The urban boys were superior to the rural boys and the difference was significant. Johnson found that Negro high school boys were superior to white school boys in strength, cardiovascular endurance state of health, physical appearance, skill and sexuality. Chandrashekar found that the mean difference of the performance of football and basketball players in extent flexibility, dynamic flexibility, leg explosive strength, abdominal strength, and gross body coordination were significant. Singh evaluated the physical fitness of hockey players.. This study showed dominance of explosive strength and respiratory endurance elements of physical fitness among hockey players. Dahl found that Negro boys were significantly higher than white boys on muscular explosiveness (standing broad jump). A larger mean difference was obtained.

## METHODOLOGY

### Selection of Subject

The purpose of study was to investigate and analyze the specific physical fitness of divisional level male cricket players. Fifty male cricket players of Jabalpur division were selected as

subjects who played cricket matches during the divisional tournament held at Jabalpur (M.P.). The range of age of the subject is from 18-25 years.

### **Selection of Specific Physical Fitness Components**

On the basis of Frank Tyson specific fitness test following physical components were selected for this study : Aerobic Fitness, Anaerobic Fitness, Flexibility, Speed And Agility, Muscular Endurance, Muscular Strength, and Muscular Power.

### **Criterion Measure**

The criterion measure chosen for the test were the scores obtained in various items of the test constructed by Frank Tyson.

### **Administration of Test and Collection of Data**

Various tests were conducted by the research scholar on cricket field. i.e. hand dynamometer squeeze, chin-ups, step - test, sit and reach test, shoulder hyper extension test. Vertical jump was conducted in multi-gym. Track of R. D. University, Jabalpur was also used to measure the performance of 40 m. sprint and 12 minutes run test. All the tests were conducted in the morning and evening session during the coaching camp.

## **RESULTS AND DISSCUSION**

To assess the specific physical fitness of Jabalpur division cricket players simple mean of their performances was calculated by research scholar. The mean of scores of each component obtained by the players were compared with the norms constructed by Frank Tyson (2002) was presented in the Table - 1.

**TABLE 1**  
**COMPARISON OF MEANS OF THE SCORES OBTAINED BY CRICKET PLAYERS WITH**  
**THE NORMS CONSTRUCTED BY FRANK TYSON**

| S.NO. | Components                    | Mean            | Result |
|-------|-------------------------------|-----------------|--------|
| 1     | 12 Minute Run Test            | 23 85. 6 Meters | Fair   |
| 2     | Step Test                     | 154.98          | Poor   |
| 3     | Phosphate Recovery Test       | 35.56           | Poor   |
| 4     | 40 meter sprint               | 6.069 sec.      | Fair   |
| 5     | Sit and Reach Test            | 4.4 cm..        | Fair   |
| 6     | Shoulder Hyper Extension Test | 19.54 cm.       | Poor   |
| 7     | Three Runs Test               | 10.56 sec.      | Fair   |
| 8     | Fielding Agility              | 17.94 sec.      | Poor   |
| 9     | Sit ups                       | 34.11           | Fair   |
| 10    | Push - ups                    | 32.89           | Good   |
| 11    | Hand Dynamometer Squeeze      | 61.77kg         | Poor   |
| 12    | Chin ups                      | 7.42            | Good   |
| 13    | Vertical Jump                 | 42.34 cm.       | Fair   |

Mean scores obtained from the cricket players were compared with the norms constructed by Frank Tyson. It was clear that the cricket players possess fair specific fitness. Research scholar conducted 13 specific physical fitness test on different abilities out of these 13 test in 6 components the players possessed fair specific fitness in 5 components the results

were poor, in 2 components results were good. The outcomes of the results were as; in 12 minutes run and in Step Test which measures the aerobic fitness of the cricket players the results were fair and poor respectively. In phosphate recovery test and in 40 meters Sprint Test the results were poor and fair respectively. In Sit and Reach Test and Shoulder Hyper Extension Test which measure the flexibility of cricket players, the results were Fair and poor. In Run a Three Test and Fielding Agility Test, which measure the speed and agility of cricket players, the results were fair and poor respectively. In Sit-ups and Push-ups Test which measures the muscular endurance of cricket players the results were fair and good respectively. In Hand Dynamometer Squeeze and Chin-ups Test which measure muscular strength the results were poor and good. In vertical jump test which measure muscular power of cricket players the results were fair.

**TABLE 2**

**MEANS OF DIFFERENT SPECIFIC PHYSICAL FITNESS COMPONENT**

| <b>S.NO</b> | <b>Components</b>             | <b>Mean</b>   |
|-------------|-------------------------------|---------------|
| 1           | 12 Minute Run Test            | 2385.6 Meters |
| 2           | Step Test                     | 154.98        |
| 3           | Phosphate Recovery Test       | 35.56         |
| 4           | 40 meter sprint               | 6.069 sec.    |
| 5           | Sit and Reach Test            | 4.4 cm.       |
| 6           | Shoulder Hyper Extension Test | 19.54 cm      |
| 7           | Three Runs Test               | 10.56 sec.    |
| 8           | Fielding Agility              | 17.94 sec.    |
| 9           | Sit ups                       | 34.11         |
| 10          | Push - ups                    | 32.89         |
| 11          | Hand Dynamometer Squeeze      | 61.77kg       |
| 12          | Chin ups                      | 7.42          |
| 13          | Vertical Jump                 | 42.34 cm      |

**TABLE 3**  
**SPECIFIC PHYSICAL FITNESS NORMS CONSTRUCTED BY FRANK TYSON**

| S. NO | Component                     | Excellent        | V. Good          | Good            | Fair             | Poor          |
|-------|-------------------------------|------------------|------------------|-----------------|------------------|---------------|
| 1     | 12 Minute Run Test            | 3200 m..         | 2950-3200m       | 2700-2950 m.    | 2450-2700 m      | Below 2450 m. |
| 2     | Step Test                     | Under 110        | 110-124          | 125-140         | 141-155          | 155+          |
| 3     | Phosphate Recovery Test       | Over 80          | 68-80            | 55-67           | 42-54            | Under 42      |
| 4     | 40 meter sprint               | Under 5.30 sec   | 5.30-5.60 sec    | 5.61-5.90 sec   | 5.91-6.20 sec    | 6.20 sec. +   |
| 5     | Sit and Reach Test            | 14 cm. +         | 10-14 cm.        | 5-9 cm.         | 0-4 cm.          | 0 cm.         |
| 6     | Shoulder Hyper Extension Test | 34 cm. +         | 30-34 cm         | 25-29 cm        | 20-24 cm         | Under 20 cm   |
| 7     | Run a Three Test              | Under 9.20 sec.  | 9.20-9.69 sec s  | 9.70-10.19sec.  | 10.20-10.69 sec. | 10.69 sec. +  |
| 8     | Fielding Agility              | Under 16.50 sec. | 16.50-16.99 sec. | 17.0-17.49 sec. | 17.50-17.99 sec. | 18 sec. +     |
| 9     | Sit ups                       | Over 54          | 45-54            | 35-44           | 25-34            | Under 25      |
| 10    | Push ups                      | Over 50          | 41-50            | 31-40           | 21-30            | Under 21      |
| 11    | Hand Dynamometer Squeeze      | Over 130 kg-     | 116-130 kg-      | 101-115 kg-     | 86-100 kg-       | Under 86 kg-  |
| 12    | Chin ups                      | Over 15          | 11-14            | 7-10            | 3-6              | Under 3       |
| 13    | Vertical jump                 | Over 64 cm.      | 54-64 cm..       | 49-56 cm.       | 41-48 cm.        | Under 41 cm.. |

## DISCUSSION

In many sports, training for successful competition has become virtually a year-round endeavour. To assist in better preparation, a competitor's year may be divided into phases such as off-season and in season, indicating reduced or increased competition commitments respectively. A number of studies have described the effects of seasons or periods of competition, training, detraining and reduced training on aspects of physical fitness. It was evident that optimum physical fitness was essential to every player to perform skills efficiently and effectively.

Today cricket is considered as an athletic activity, by achieving an optimum physical fitness level player enhance the sports performance. It was evident from the findings that Jabalpur division cricket players possess a fair specific fitness. The reason may be that the Jabalpur division cricket players did not pay full attention towards physical fitness, besides their batting or bowling they had to work on their physical fitness also. The reason may be due to lack of concentration and motivation on test and there might be lack proper physical fitness programs to the players. The players were not aware about their fitness and they did not know about the fitness and the role of fitness in achieving good sports performance. Based on specific physical fitness conducted by the research scholar on selected 50 cricket players of Jabalpur division and their fitness was found fair. Hence, the hypothesis as stated earlier was rejected.

## CONCLUSIONS

Within the limitation of the present study and on the basis of findings, conclusions were drawn :

1. The fifty cricket players of division cricket players possessed fair specific physical fitness.
2. In 12 minute Run Test, 40 Meter Sprint, Sit and Reach Test, Run a Three Test, Sit-ups and Vertical Jump Test the results were fair.
3. In Step Test, Phosphate Recovery Test, Shoulder Hyper Extension Test, Fielding Agility and Hand Dynamometer Squeeze Test result were poor.
4. In push ups and chin ups test results were good.

## RECCOMENDATION

On the basis of the study it is strongly recommended that the coaches dealing with the players at this level may pay more attention towards specific physical fitness for their players.

## REFERENCES

- Albara, B.E.,** Cricket Patiala: National Institute of Sports, 1947.
- Chandrashekar, Mohan G.** "Comparison of Selected Physical Fitness Components of Football and Basketball Players", Unpublished Master's Degree Thesis, Jiwaji University, 1981.
- Dahl, Elaph Lydh** "A Comparison of Physical Fitness of Negro and White Boys of Texas School", Dissertation Abstract International 37 (April, 1971):5174-A.
- Herman, Boone** "A Comparison of Physical Fitness Level of Urban and Rural Boys", Completed Research in Health, Physical Education and Recreation 9 (1969):86.
- Johnson, Joseph Benyamin** "A comparison of Physical Fitness and Self Concept Between High School Negro and White Male students", Dissertation Abstract International 31 (April 1971):5180.
- Singh, Hardayal** Science of Sports Training. New Delhi: D.V.S. Publication 1991.
- Singh, Karamjit** "Physical Fitness of Hockey Players", Society for the National Institute of Physical Education and Sports Journal 1 (January 1978):29.
- Tyson, Frank** Learn Cricket With Frank Tyson . New Delhi: Rupa Co. Publishers, 2002.

## COMPARATIVE ANALYSIS OF LEADERSHIP BEHAVIOUR PREFERRED BY FEMALE VOLLEYBALL PLAYERS FROM THEIR COACHES

Dr. Rajinder Kumar Pathania\* & Gulbahar Khan\*\*

### ABSTRACT

*The Purpose of the study was to analyse and compare the preferred leadership behaviour of female volleyball players from their coaches. One hundred (Inter-university level =64, All India level=36)) female volleyball players were selected to serve as subjects for this study. The subjects were in age ranged from 19 to 24 years. Leadership Scale for Sports developed by P. Chelladurai (1994) was used to measure preferred behaviour preferences of female volleyball players. To assess the preferred leadership behaviour of these female volleyball players, means, standard deviations, t- ratio and F-ratio were computed. The results of the study showed that Inter-university and All India level female volleyball players exhibited different preferences on different dimensions of leader behaviour except training and instruction and autocratic behaviour dimensions of preferred leadership. Inter-university level and All India level female volleyball players also preferred their coaches more on training and instruction in comparison of rest of the dimesions preferred leadership behaviour.*

**Key words:** Preferences, Leadership, Levels, Behaviour, Gender.

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## INTRODUCTION

Research in sport psychology in order to improve athletic performance has been used for many years in other countries. In the United States we are basically just beginning to aid the coach in making valid and reliable decisions concerning athletic performance, yet much of the research may be labeled theoretical or simply a study for its own sake, as compared to practical or applied research applicable -or utilization by coaches. Undoubtedly a number of individuals, including many coaches, look, at much theoretical research as practically useless and not directly applicable to their purposes (Fuoss and Tropmann.,1985).

The participation in sports contributes to building up self confidence, enhance intellectual level. personality development a no. out going tendency or extraversion as such proficiency leads to enhanced success in sports activities is highly valued in one's group (Simon,1964).

Success in athletics seems to be dependent in part on psychological status and traits. The use of an athlete's personality profile, in concern with knowledge of their past experience, coach's rating, anatomic and physiological characteristics and so one can enhance the accuracy of prediction in a number of sports ( Morgan, 1986).

Defensive players preferred and perceived greater amounts of democratic, autocratic behaviour, and social support, players who prefer more of a particular dimension may also in turn perceive greater amounts of that behaviour (Chelladurai and Saleh,1980).

Leadership in hockey situations appears to be more effective when the leader is oriented toward personal relations between himself and his team than when he is oriented primarily toward completion of the group task i.e. winning (Carron,1980).

Leadership in basketball setting comes from a member of a team's starting five players who is held in rather high esteem by his teammates and is one of the better basketball players on the team. Leaders in the basketball situation are task oriented and are more intelligent, more venturesome, more conscientious and self -opinionated than nonreaders (Anpaugh,1972).

## REVIEW OF RELATED LITERATURE

Lee and Lee (1993) found that team sports athletes preferred and perceived more democratic behaviour from their coaches than did the other two groups. Riemer and Chelladurai (1995) indicated that defensive players preferred and perceived greater amounts of democratic behaviour, autocratic behaviour, and social support than did offensive players. Sherman and Fuller (2000) Results revealed an overwhelmingly high level of similarity in the coaching preferences between all athletes regardless of gender. Lindauer(2000) found significance of differences between individual and team sport athletes and between male and female athletes' preferences for specific coaching behavior dimensions i.e. Democratic Behavior, Autocratic Behavior, Positive Feedback , and Social Support. Lam (2007) indicated that female basketball players preferred a higher degree of democratic behavior, social support, positive feedback, but a lower degree of autocratic behavior. Male basketball players preferred a higher degree of social support from their coaches.

The Purpose of the study was to analyse and compare the preferred leadership behaviour of female volleyball players from their coaches. It was hypothesized that there would no significance of difference in their leadership preferences among female volleyball players of Inter-university level and All India level.

## METHODOLOGY

### Selection of Subjects

One hundred (Inter-university level =64, All India level=36)) female volleyball players

representing their respective university in East zone Inter-university and All India Inter-university Volleyball competitions held in Pt. Ravi Shanker University, Raipur 2009-2010 were selected to serve as subjects for this study. The subjects were in age ranged from 19 to 24 years.

### **Description of Questionnaire**

Leadership Scale for Sports developed by P. Chelladurai (1994) was used to measure preferred behaviour preferences of female volleyball players. The scale consisted of 40 items for athlete's perception of coach's behaviour and 40 items for preference version representing five dimensions of leadership behaviour i.e. training and instruction, democratic behaviour, autocratic behaviour, social supports and positive feedback (Rewarding behaviour). The scale had test-retest reliability 0.72 for training behaviour, 0.82 for democratic behaviour, 0.76 for autocratic behaviour, 0.71 for social supports, and 0.79 for positive feedback. The obtained scores tabulated for all the items under dimensions of leadership behaviour were averaged out to get score for each dimension.

### **Administration of Questionnaire and Collection of Data**

The necessary permission from the organizing secretary of All India and East zone Inter-university women volleyball Competitions was obtained by the research scholar to conduct this study on female volleyball players during competitions. The coaches and subjects were contacted at the site competition personally and their sincere cooperation was solicited. Necessary instructions were given to the subjects before the administration of each test. Confidentiality of responses was guaranteed. No time limit for filling the questionnaire was set, but subjects were made to respond as quickly as possible. As soon as a group of players completed the questionnaire, it was collected from the athletes and verified that no questionnaire was left without being answered.

## **RESULTS AND DISCUSSION**

To assess the preferred leadership behaviour of East zone and All India Inter-university female volleyball players, means and standard deviations, t-ratio and F-ratio were computed. Wherever, the F-ratio was found significant, Scheffe's Test of post-hoc analysis (Sheehan, 1971) was applied to find out significance of difference between ordered paired means. The level of significant was set at .05 level. The SPSS version 16.0 for windows, was used for data management and statistical analysis, and results pertaining to this have been presented in Table 1 to 6.

**TABELE 1**  
**DESCRIPTIVE STATISTICS OF PREFERENCES ON FIVE DIMENSIONS OF**  
**LEADER BEHAVIOUR OF INTER-UNIVERSITY AND ALL INDIA**  
**LEVEL FEMALE VOLLEYBALL PLAYERS**

| Leader Behaviour Dimensions | Inter-university level (N=64) |      | All India level (N=36) |      |
|-----------------------------|-------------------------------|------|------------------------|------|
|                             | M                             | SD   | M                      | SD   |
| Training & Instruction      | 4.287                         | .399 | 4.476                  | .455 |
| Democratic Behaviour        | 3.971                         | .544 | 3.678                  | .523 |
| Autocratic Behaviour        | 3.238                         | .893 | 2.950                  | .816 |
| Social Support              | 3.985                         | .525 | 3.495                  | .594 |
| Positive Feedback           | 4.006                         | .985 | 4.404                  | .593 |

The mean scores of five dimensions of leader behaviour as preferred by East zone Inter-university and All India level female volleyball players have been depicted in figures 1 to 5.

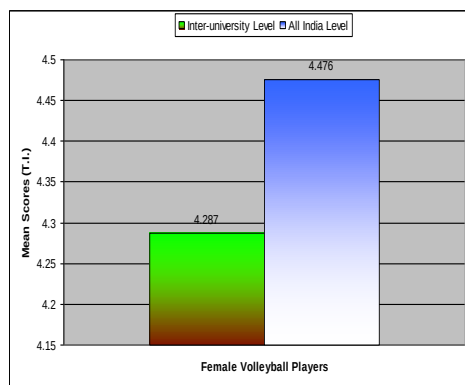


Fig. 1: Mean Scores of Inter-university and All India Level Female Volleyball Players on Training and Instruction Dimension of preferred Leadership.

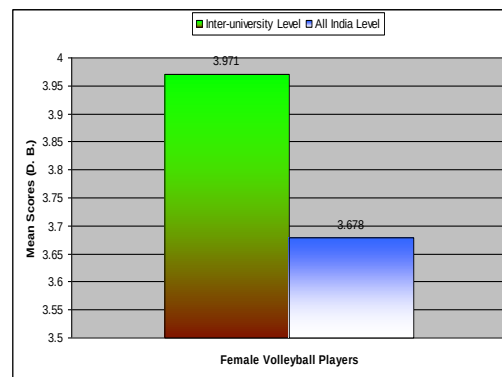


Fig. 2: Mean Scores of Inter-university and All India Level Female Volleyball Players on Democratic Behaviour Dimension of preferred Leadership .

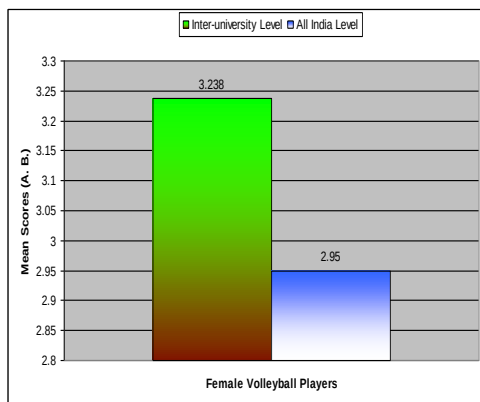


Fig. 3: Mean Scores of Inter-university and All India Level Female Volleyball Players on Autocratic Behaviour Dimension of preferred Leadership Behaviour.

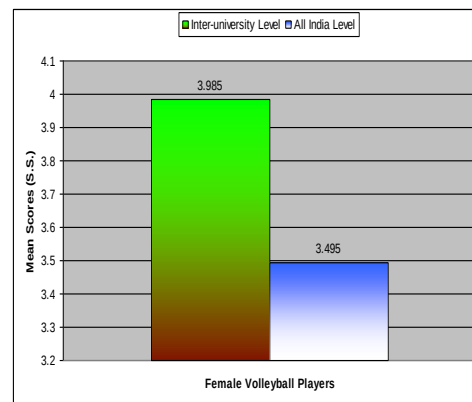


Fig. 4: Mean Scores of Inter-university and All India Level Female Volleyball Players on Social Supports Dimension of preferred Leadership Behaviour.

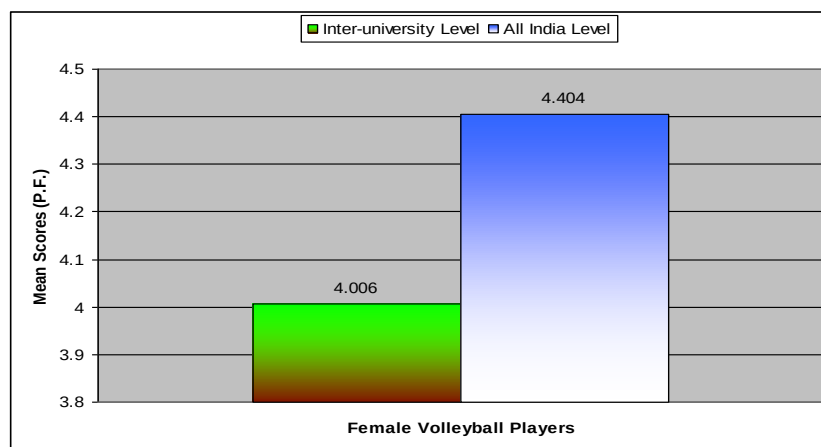


Fig. 5: Mean Scores of Inter-university and All India Level Female Volleyball Players on Positive Feedback Dimension of preferred Leadership Behaviour.

**TABELE 2**  
**ANALYSIS OF VARIANCE FOR PREFERRED LEADERSHIP OF INTER-  
 UNIVERSITY LEVEL FEMALE VOLLEYBALL PLAYERS**

| Sources of Variance | df  | Sum of Squares | Mean Square | F- ratio |
|---------------------|-----|----------------|-------------|----------|
| Between Groups      | 4   | 47.19          | 11.79       | 23.61*   |
| Within Groups       | 315 | 157.43         | 0.500       |          |
| Total               | 319 | 204.62         |             |          |

\*Significant at .05 level.,  $F_{.05}(4, 425) = 2.40$ .

From Table 2, It is evident that the statistically significant difference existed among inter-university level female volleyball players on preferred leadership, as the obtained F-value of 23.61 was much higher than the required  $F_{.05}(4, 315) = 2.40$ .

As the F-ratio was found to be significant, Scheffe's Test of Post-hoc comparison was applied to study the significance of differences among Inter-university level female volleyball players on five dimensions of leader behaviour of preferred leadership and the data pertaining to this have been presented in Table 3.

**TABLE 3**  
**SIGNIFICANCE OF DIFFERENCES AMONG INTER-UNIVERSITY LEVEL FEMALE  
 VOLLEYBALL PLAYERS BETWEEN ORDERED PAIRED MEANS ON FIVE  
 DIMENSIONS OF PREFERRED LEADERSHIP**

| Mean Scores |       |       |       |       |                        |                          |
|-------------|-------|-------|-------|-------|------------------------|--------------------------|
| TI          | DB    | AB    | SS    | PF    | Paired mean difference | Confidence Interval (CI) |
| 4.287       | 3.971 | -     | -     | -     | 0.457*                 | 0.443                    |
| 4.287       | -     | 3.238 | -     | -     | 1.190*                 |                          |
| 4.287       | -     | -     | 3.985 | -     | 0.444*                 |                          |
| 4.287       | -     | -     | -     | 4.006 | 0.422                  |                          |
| -           | 3.971 | 3.238 | -     | -     | 0.733*                 |                          |
| -           | 3.971 | -     | 3.985 | -     | 0.014                  |                          |
| -           | 3.971 | -     | -     | 4.006 | 0.035                  |                          |
| -           | -     | 3.238 | 3.985 | -     | 0.746*                 |                          |
| -           | -     | 3.238 | -     | 4.006 | 0.768*                 |                          |
| -           | -     | -     | 3.985 | 4.006 | 0.021                  |                          |

\*Significant at .05 level

It is quite obvious from the table 3, that there were significant differences on preferred leadership among Inter-university level female volleyball players between training and instruction -democratic behaviour followed by autocratic behaviour, and social supports; democratic behaviour - autocratic behaviour; autocratic behaviour- social support followed by positive feedback, as the paired mean differences of 0.457, 1.19, 0.444, 0.733, 0.746 and 0.768 respectively were higher than the confidence interval (C.I.) of 0.443. But the mean differences between training and instruction- positive feedback; democratic behaviour - social support followed by positive feedback and social support - positive feedback respectively were not significant at 0.05 level, as the confidence interval of 0.443 was higher than the mean differences.

**TABELE 4**  
**ANALYSIS OF VARIANCE FOR PREFERRED LEADERSHIP OF ALL INDIA LEVEL**  
**FEMALE VOLLEYBALL PLAYERS**

| Sources of Variance | df  | Sum of Squares | Mean Square | F- ratio |
|---------------------|-----|----------------|-------------|----------|
| Between Groups      | 4   | 50.48          | 14.87       | 40.18*   |
| Within Groups       | 175 | 64.77          | 0.37        |          |
| Total               | 179 | 124.45         |             |          |

\*Significant at .05 level.,  $F_{.05}(4, 175) = 3.04$ .

From Table 4, It is evident that the statistically significant difference existed among All India level female volleyball players on preferred leadership was very high as the obtained F-value of 40.18 was much higher than the required  $F_{.05}(4, 175) = 3.04$ .

As the F-ratio was found to be significant, Scheffe's Test of Post-hoc comparison was applied to study the significance of differences among All India level female volleyball players on five dimensions of leader behaviour of preferred leadership and the data pertaining to this have been presented in Table 5.

**TABLE 5**  
**SIGNIFICANCE OF DIFFERENCES AMONG ALL INDIA LEVEL FEMALE**  
**VOLLEYBALL PLAYERS BETWEEN ORDERED PAIRED MEANS**  
**ON FIVE DIMENSIONS OF PREFERRED LEADERSHIP.**

| Mean Scores |       |       |       |       |                        |                          |
|-------------|-------|-------|-------|-------|------------------------|--------------------------|
| TI          | DB    | AB    | SS    | PF    | Paired mean difference | Confidence Interval (CI) |
| 4.476       | 3.678 | -     | -     | -     | 0.797*                 | 0.436                    |
| 4.476       | -     | 2.950 | -     | -     | 1.526*                 |                          |
| 4.476       | -     | -     | 3.495 | -     | 0.981*                 |                          |
| 4.476       | -     | -     | -     | 4.404 | 0.072                  |                          |
| -           | 3.678 | 2.950 | -     | -     | 0.728*                 |                          |
| -           | 3.678 | -     | 3.495 | -     | 0.183                  |                          |
| -           | 3.678 | -     | -     | 4.404 | 0.725*                 |                          |
| -           | -     | 2.950 | 3.495 | -     | 0.544*                 |                          |
| -           | -     | 2.950 | -     | 4.404 | 1.453*                 |                          |
| -           | -     | -     | 3.495 | 4.404 | 0.909                  |                          |

\*Significant at .05 level.

It is quite obvious from the table 5, that there were significant differences on preferred leadership among All India level female volleyball players between training and instruction -democratic behaviour followed by autocratic behaviour, and social supports; democratic behaviour - autocratic behaviour followed by positive feedback; autocratic behaviour- social support followed by positive feedback, and social supports- positive feedback, as the paired mean differences of 0.797, 1.526, 0.981, 0.728, 0.725, .544, 1.453 and 0.909 respectively were higher than the confidence interval (C.I.) of 0.436. But the mean differences between training and instruction- positive feedback and social support - positive feedback respectively were not significant at 0.05 level, as the confidence interval of 0.436 was higher than the mean differences.

**TABELE 6**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF INTER-UNIVERSITY AND ALL INDIA LEVEL FEMALE VOLLYBALL PLAYERS ON FIVE DIMENSIONS OF PREFERRED LEADERSHIP**

| Leader Behaviour Dimensions | Sex                           | Mean           | MD   | $\sigma_{DM}$ | t-ratio |
|-----------------------------|-------------------------------|----------------|------|---------------|---------|
| Training & Instruction (TI) | Inter-university<br>All India | 4.287<br>4.476 | .047 | .087          | 0.542   |
| Democratic Behaviour (DB)   | Inter-university<br>All India | 3.971<br>3.678 | .293 | .111          | 2.622*  |
| Autocratic Behaviour (AB)   | Inter-university<br>All India | 3.238<br>2.950 | .288 | .181          | 1.598   |
| Social Support (SS)         | Inter-university<br>All India | 3.985<br>3.495 | .490 | .115          | 4.271*  |
| Positive Feedback (PF)      | Inter-university<br>All India | 4.006<br>4.404 | .398 | .180          | 2.205*  |

\*Significant at .05 level,  $t_{.05(98)} = 1.98$

It is evident from table 14, that there were statistically significant differences between the preferences of Inter-university level and All India level female volleyball players in training and instruction, positive feedback and social support dimensions of leader behaviour, as the obtained t-value of 2.622, 4.271, and 2.205 respectively were higher than the required t-value of  $t_{.05(98)} = 1.98$ . But the significant differences were not found in training and instruction and autocratic behaviour dimensions of leader behaviour, as the obtained t-value of 0.542, and 1.598 respectively were lesser than the required t-value of  $t_{.05(98)} = 1.98$ .

## DISCUSSION

Findings of descriptive data of Inter-university level female volleyball players on five dimensions of preferred leadership behaviour indicated that women volleyball players preferred more democratic behaviour, autocratic behaviour and social support from their coaches than did All India level female volleyball respondents. In case of All India level women volleyball players, they preferred more training and instruction and positive feedback from their coaches than their counter parts.

The results of one way analysis of variance (ANOVA) for Inter-university level female volleyball players on five dimensions of preferred leadership behaviour expressed significant differences among Inter-university level female volleyball players in their preferences for preferred leadership which may be due to variation in practice method, coaching style, Inter personal relationship and reinforcement. The Scheffe's Test of Post-hoc comparisons showed that Inter-university level female volleyball players preferred more training and instruction followed by Positive feedback, democratic behaviour, social support and autocratic behaviour from their coaches.

In case of All India level female volleyball players on five dimensions of preferred leadership behaviour, they also expressed significant differences among female volleyball players in their preferences for preferred leadership. The Scheffe's Test of Post-hoc comparisons showed that female volleyball players also preferred more training and instruction followed by

positive feedback, democratic behaviour, social support and autocratic behaviour from their coaches.

When the Inter-university and All India level female volleyball players were compared together on five dimensions of leader behaviour, they exhibited significant differences in their preferences for democratic behaviour, social support and positive feedback dimensions of leader behaviour. But They had no significant differences in their preferences for training and instruction and autocratic behaviour dimensions of leader behaviour, which showed that Inter-university and All India level female volleyball players preferred their coaches equally in these dimensions of leader behaviour and differently in other dimension of leader behaviour. The findings are partially supported by Chelladurai and Saleh (1978).

It was hypothesized that there would no significance of difference in their leadership preferences among female volleyball players of Inter-university level and All India level, this hypothesis has been partially accepted, as the Inter-university level female volleyball players had significant difference in their preferences between training and instruction -democratic behaviour followed by autocratic behaviour, and social supports; democratic behaviour - autocratic behaviour; autocratic behaviour- social support followed by positive feedback

In case of All India level female volleyball players, they had significant difference in their preferences between training and instruction -democratic behaviour followed by autocratic behaviour, and social supports; democratic behaviour - autocratic behaviour followed by positive feedback; autocratic behaviour- social support followed by positive feedback, and social supports- positive feedback.

## CONCLUSIONS

Within the limitation of present study, the following conclusions are enumerated :

1. Female volleyball players of Inter-university and All India level had exhibited different preferences on five dimensions of leader behaviour.
2. Inter-university level female volleyball players preferred their coaches more on training and instruction followed by Positive feedback, democratic behaviour social support, and autocratic behaviour dimensions.
3. All India level female volleyball players preferred their coaches more on training and instruction followed by positive feedback, democratic behaviour, social support and autocratic behaviour) dimensions .
4. Inter-university and All India level female volleyball players expressed different preferences on democratic behaviour, social support and autocratic behaviour) dimensions of leader behaviour. They had similarity in Training and instruction and autocratic behaviour.

## REFERENCES

- Anpaugh, Wild James.** "Leadership Characteristics of Basketball Players as perceived by Team Members ,and as Measured by Related Evaluative Instruments" Dissertation Abstracts International 32 : 9 (1972) :5011.
- Chelladurai P. and Saleh, S.D.** "Dimension of Leader Behavior in Sports Development of a Leadership Scale" Journal of Sport psychology 2 (1980) : 34-45.
- Carron, A.V.** Social Psychology of Sport. New York : Mouvement Publication, 1980.
- Chelladurai, P. and Saleh, S.D.** "Preferred Leadership in Sports" Canadian Journal of Applied Sport Sciences 3 (1978) : 85-92.

- Chelladurai, P.** Manual of Leadership Scale for Sports (U.S.A: Ohio State University, 1994).
- Fuoss, Donald E. and Tropmann, Robert J.** Effective coaching: A Psychological Approach. New York : Macmillan Publishing Company, 1985.
- Kim, B. H., Lee, H.K., & Lee, J.Y.** "A Study on the Coaches Leadership Behaviour in Sports". (Unpublished Manuscript, Korea Sports Science Institute) Cited by Robert N. Singer, Milledge Murphey and L. Keith Tennant. Handbook of Research on Sport Psychology (New york : Me Millan Publishing Company, 1993), p. 653.
- Lindauer, J. A.** "Comparison of Preferred Coaching Leadership Behaviors of College Athletes in Individual and Team Sports, Master's Thesis in Exercise and Sport Science, Taiwan , 2000.
- Lam, E. T C.** "Preferred and perceived leadership styles by NCAA basketball players". Research Quarterly for Exercise and Sport, 78 (2007) :114-A.
- Morgan, W.P.** Sports Personology. The Credulous - Skeptical Argument in Perspective in Sports Psychology. An Analysis of Athletic Behaviour. (Ed. W. Straub Movement Pub. In this N.Y. Cited by Stan-Power Psychological Assessment Procedures at a Track & Reid National Event Squad Training Weekend' Sports science Education by J. Watkins. Thomas Reilly and Les Burtwiz (London : E & FN Spon, 1986): 181.
- Riemer, Harold A. & Chelladurai, P.** "Leadership and Satisfaction in Athletics" Journal of Sport and Exercise Psychology 17: 3 (September, 1995): 276.
- Sherman, C. A. & Fuller, F.** "Gender comparisons of preferred coaching behaviors in Australian sports". Journal of Sport Behavior, 23(2000) :389-406.
- Sheehan, Thomas J.** A Introduction to the Evaluation of Measurements Data in Physical Education. Massachusetts, Addison - Wesley Publications INC; 1971.
- Simon, E.** "Scope and Function of Research in Sports and Physical Education" Flep Bulletin 34 (1964) : 98.

## ANALYSIS OF PERSONALITY FACTORS AMONG MALE AND FEMALE VOLLEYBALL PLAYERS OF CHHATTISGARH

Dr. Kaushal Kumar Aggarwal\*

### ABSTRACT

*The purpose of the present investigation was to compare and analyse the personality factors among male and female Volleyball players of Chhattisgarh. The sample consisted 100 State level volleyball players (Sixty males and forty females) belong to different districts of chhattisgarh who participated in state competitions during the year 2009-2010. The mean age and SD of male and female volleyball players of state level were  $19.19 \pm 1.23$  &  $17.16 \pm 2.19$  respectively and the training age ranged 01 to 06 Years. Eysenck's Personality Questionnaire-R (E.P.Q.-R) prepared by Eysenck and Eysenck was selected to measure the four dimensions of personality of state level volleyball players. To assess the four personality characteristics of male and female volleyball players of state level, means and standard deviations, t-ratio and analysis of variance (ANOVA) on dependent variable for all the subjects taken together and separately for both the gender were computed. The results of the study revealed that state levels volleyball players as whole had similarity in psychoticism, neuroticism and social desirability personality factors and dissimilarity in extraversion. Male volleyball players were more neurotic in nature followed extraversion, social desirability and psychoticism personality factors than their counter parts.*

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## INTRODUCTION

Sport is a psycho-social activity. It has both psychological and social dimensions, besides physical, physiological and technical aspects. In the modern era of competition, the psychological preparation of a team is as much important as teaching the different skills of a game on the scientific lines. The teams are prepared not only to play the games, but to win the games. And for winning the games, it is not only the proficiency in the skills which bring victory but more important is the spirit of the player with which they play and perform their best in the competition (Silva & Weinberg, 1984).

The participation in Sports contributes to building up self confidence, enhance intellectual level, personality development and outgoing tendency or extraversion as such proficiency leads to enhanced success in sports activities which is highly valued in one's group. Human life is a complex of physical, intellectual, emotional and social development patterns sports and physical activities are integral parts of these patterns. People compete in sports because of the opportunity provided to evaluate their competence in interacting with one's environment. Competition provides people of all levels of ability with the opportunity to seek out their enforcements attractive to them and gain certain measures of self-evaluation (Sinha, 1986).

Personality is made up of many components some of which are objective, observable and measurable; others are subjective and therefore less easily studied and measured. Among the objective components of personality are physical characteristics, such as body size, physique and factors which influence the speed and strength of movements, aptitudes and talents- both physical and intellectual, habits, behavior patterns and mode of action. The subjective components include motives, feeling, ideas, attitudes, commitments that give direction to the individual way of thinking feeling and action. Thus personality pattern are made of traits, specific qualities of behavior organized and integrated into a whole. The two major components of personality are the 'core' or concept of self and 'spokes of the wheel' the traits.

Physical education and sports plays an important role in development of personality of a person in schools and sports field. Main aim of education in school is all around and overall development of child. For that different method, syllabus and programme is used. Physical education is a part of education. No one school is valuable without sports. It is compulsory in school not for only participation of selected players in competition but it develop the personality of men (Cratty, 1989).

Relationship between personality and performance in athletic or Sport skill are often discussed in the pages of professional Journals and by individuals on the playing fields. People placed in situation which call for action usually several more of themselves than is exposed in less dynamic situations. Some have speculated that movement characteristics /who may be or the traits of the total personality complex (Cratty, 1989).

Success in athletics seems to be dependent in part on psychological status and traits. The use of an athlete's personality profile, in concern with knowledge of their past experience, coach's rating, anatomic and physiological characteristics and so one can enhance the accuracy of prediction in a number of sports (Morgan, 1986).

The purpose of the present investigation was to compare and analyse the personality factors among male and female Volleyball players of Chhattisgarh. It was hypothesized that There would be no significant difference among male and female Volleyball players as a whole and separately in their four personality factors.

## METHODOLOGY

### Selection of Subjects

The sample consisted 100 State level volleyball players (Sixty males and forty females) belong to different districts of chhattisgarh who participated in state competitions during the year 2009-2010.

### Instrumentation

Eysenck's Personality Questionnaire-R ( E.P.Q.-R) prepared by Eysenck and .Eysenck was selected to measure the four dimensions of personality of state level volleyball players. The Questionnaire consists of 90 items to measure the personality traits of the players and 90 items representing three dimensions of personality i.e. Extraversion, Psychoticism, Neuroticism and Social Desirability. The over all test-retest reliability with age and sex were .78 for Psychoticism, .89 for .Extraversion, .86 for Neuroticism and .84 Social Desirability.

The subjects were contacted at the site of state competition and training centre personally and their sincere cooperation was solicited. Respondents were called to a common place. As soon as a group of players completed the Questionnaire. The completed questionnaires were collected from the volleyball players and it was verified that no questionnaire was left without being answered.

## REVIEW OF RELATED LITERATURE

Solomon(2001) found that the coaches' expectations for the athletes were the only significant predictor of athletic performance, of the issues addressed and evaluated within the survey completed by the participants. Reiss, Sherman, and Wiltz (2001) found that the strongest correlation between sports and motivation was present in the motivational factor "enjoyment of physical exercise." Moreover, they found that an "athlete" may effectively be defined simply as "someone who enjoys physical activity". Erdheim and Wangs (2007) found that personality can predict athletic performance. Moreover, we can say that the individuals high in dimensions of personality that include setting high goals, such as their coaches' high expectations, are more likely to achieve such high set athletic goals. Yanada and Hirat (1970) found to be less neurotic and depressive and more hypomania than those students who discontinued. They assumed that it may be that low trait anxiety and neuroticism are pre-requisites for success in athletics, and anxious on demotic individuals simply avoid or drop out of athletics.. Meclaney (1959) revealed that high fitness group appeared to be more group tended to be self-sufficient. Also the subjects in high fitness group appeared to be more trusted and free of jealousy. Where as those in the low fitness group seemed to be more suspicious and self opinionated.

## RESULTS AND DISCUSSION

The statistical analysis of data on four personality characteristics i.e. Psychoticism, Extraversion, Neuroticism and Social Desirability collected on one hundred male and female State level volleyball players (sixty males and forty females ) belong to different districts of chhattisgarh who participated in state competitions during the year 2009-2010. The mean age and SD of male and female volleyball players of state level were  $19.19 \pm 1.23$  &  $17.16 \pm 2.19$  respectively has been presented in this chapter. The training age of volleyball players ranged 01 to 06 Years.

To assess the four personality characteristics of male and female volleyball players of state level, means and standard deviations, t-ratio and analysis of variance (ANOVA) on dependent variable for all the subjects taken together and separately for both the gender were computed and data pertaining to this have been presented in table 1 to 5.

**TABLE 1**  
**DESCRIPTIVE STATISTICS OF FOUR PERSONALITY FACTORS OF STATE LEVEL**  
**MALE AND FEMALE VOLLEYBALL PLAYERS OF CHHATTISGARH**

| S. No. | Personality Dimensions | Male(N=40) |      | Female (N=60) |      |
|--------|------------------------|------------|------|---------------|------|
|        |                        | M          | SD   | M             | SD   |
| 1      | Psychoticism           | 7.59       | 3.04 | 7.16          | 2.21 |
| 2      | Extraversion           | 10.50      | 2.18 | 8.72          | 3.01 |
| 3      | Neuroticism            | 10.53      | 3.40 | 10.80         | 3.58 |
| 4      | Social Desirability    | 7.86       | 2.51 | 7.55          | 2.49 |

**TABLE 2**  
**ANALYSIS OF VARIANCE OF PERSONALITY FACTORS OF STATE LEVEL MALE**  
**AND FEMALE VOLLEYBALL PLAYERS OF CHHATTISGARH**

| S.No | Variables           | Source of Variance              | df      | Sum of Squares   | Mean Square    | F- Value |
|------|---------------------|---------------------------------|---------|------------------|----------------|----------|
| 1    | Psychoticism        | Between Groups<br>Within Groups | 1<br>98 | 4.81<br>741.5    | 04.81<br>07.56 | 0.66     |
| 2    | Extraversion        | Between Groups<br>Within Groups | 1<br>98 | 58.54<br>922.18  | 58.54<br>09.41 | 0.11     |
| 3    | Neuroticism         | Between Groups<br>Within Groups | 1<br>98 | 01.31<br>1229.05 | 01.31<br>12.54 | 5.99*    |
| 4    | Social Desirability | Between Groups<br>Within Groups | 1<br>98 | 2.53<br>612.65   | 2.53<br>06.25  | 0.37     |

\*Significant at .05 level,  $F_{.05}(1, 98) = 3.94$ .

From table 2, It is evident that significant differences existed among male and female volleyball players of state level in their neuroticism factor of personality, as the obtained F-values of 5.99 was higher than the required  $F_{.05}(1, 98) = 3.94$ . They did not differ in their three personality factors i. e. Psychoticism, extraversion and social desirability, as the obtained t-values of 0.66, 0.11 and 0.37 respectively were less than the required  $F_{.05}(1, 98) = 3.94$ .

**TABLE 3**  
**ANALYSIS OF VARIANCE OF PERSONALITY FACTORS OF STATE LEVEL MALE**  
**VOLLEYBALL PLAYERS OF CHHATTISGARH**

| Source of Variance | df  | Sum of Squares | Mean Square | F- Value |
|--------------------|-----|----------------|-------------|----------|
| Between Groups     | 3   | 449.18         | 149.73      | 16.84*   |
| Within Groups      | 236 | 2099.77        | 8.89        |          |
| Total              | 239 | 2548.95        |             |          |

\*Significant at .05 level,  $F_{.05}(3, 236) = 2.65$ .

From table 3, It is evident that significant differences existed among state level male volleyball players in their all personality factors, as the obtained F-values of 16.84 was too much higher than the required  $F_{.05}(3, 236) = 2.65$ .

**TABLE 4**  
**ANALYSIS OF VARIANCE OF PERSONALITY FACTORS OF STATE LEVEL**  
**FEMALE VOLLEYBALL PLAYERS OF CHHATTISGARH**

| Source of Variance | df  | Sum of Squares | Mean Square | F- Value |
|--------------------|-----|----------------|-------------|----------|
| Between Groups     | 3   | 317.22         | 105.74      | 11.79*   |
| Within Groups      | 156 | 1399.13        | 8.97        |          |
| Total              | 159 | 1729.22        |             |          |

\*Significant at .05 level,  $F_{.05}(3, 156) = 2.66$ .

From table 4, It is evident that significant differences existed among state level female volleyball players in their all personality factors, as the obtained F-values of 11.79 was too much higher than the required  $F_{.05}(3, 156) = 2.66$ .

**TABLE 5**  
**SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF STATE LEVEL**  
**MALE AND FEMALE VOLLEYBALL PLAYERS ON FOUR**  
**PERSONALITY FACTORS**

| S.No | Variables              | Sex            | Mean           | MD   | $\sigma$<br>DM | t-ratio |
|------|------------------------|----------------|----------------|------|----------------|---------|
| 1    | Psychoticism           | Male<br>Female | 07.59<br>07.16 | 0.43 | 0.37<br>0.31   | 0.66    |
| 2    | Extraversion           | Male<br>Female | 10.50<br>08.72 | 1.58 | 0.43<br>0.48   | 2.12*   |
| 3    | Neuroticism            | Male<br>Female | 10.53<br>10.80 | 0.27 | 0.33<br>0.50   | 0.21    |
| 4    | Social<br>Desirability | Male<br>Female | 07.86<br>07.55 | 0.31 | 0.29<br>0.31   | 0.49    |

\*Significant at .05 level  $t_{.05}(98) = 1.98$

From table 5, It is clear that the significant difference was found between State level male and female volleyball players on extraversion personality factor only, as the obtained t-value of 2.12 was higher than the required  $t_{.05}(98) = 1.98$ . They did not differ in their three personality factors i. e. Psychoticism, neuroticism and social desirability, as the obtained t-values of 0.66, 0.21 and 0.49 respectively were less than the required  $t_{.05}(98) = 1.98$ .

## DISCUSSION

When state level volleyball players as a whole were compared on four dimensions of personality characteristics, they had no significant differences in all dimensions except extraversion only. This may also be due to similarity in setting the specific goal, plan and nature of game play.

To see whether state level male volleyball players on four dimensions of personality traits produced significant analysis of variance. This similarity in personality structure of same level competition may be attributed to the possible similarity of game style, attitude and competition orientation of male players participated at state level. In case of state level female volleyball players, they were also found significantly differ in all dimensions of personality dimensions.

When male and female volleyball players of state level were compared together on the four dimensions of personality, they had no significant differences in all dimensions except extraversion only. The females were less extroverted than their counter parts. This may also be due to variations in intellectual level for specific goal setting.

Hypothesis-1: There would be no significant difference between male and female volleyball players in their four personality factors. This hypothesis has been partially accepted, as they had significantly differ in extraversion dimension only, but they did not differ significantly in other dimensions of personality characteristics.

Hypothesis-2: There would be no significant difference among male and female volleyball players as a whole and separately in their four personality factors. This hypothesis has been accepted, as the both gender volleyball players separately had significantly differ in all personality factors which may be due to variations in training age and performance level.

## CONCLUSIONS

Within the limitations of the present study, the following conclusions are enumerated :

1. State levels volleyball players as whole had similarity in psychoticism neuroticism and social desirability personality factors. But they had a dissimilarity in extraversion.
2. Male volleyball players were found more extroverted than their counter parts.
3. Male and female volleyball players together expressed differences in extraversion only.
4. Male volleyball players were more neurotic in nature followed extraversion, social desirability and psychoticism personality factors than their counter parts.

## RECCOMENDATION

It is recommended that volleyball coaches may modify their coaching program according to the personality characteristics of the players.

## REFERENCES

- Cratty, Bryant J.** Psychology and Physical activity . New York : Engle wood Cliffs, N.J. Prentice Hall Inc., 1989.
- Erdheim, J., & Wang, M.** “Does the Five-Factor Model of Personality relate to Goal Orientation?” Personality and Individual Differences, 43 : 6 (2007):1493-1505.
- Me Chaney, Byron Nelson** “A comparison of Personality Characteristics, Self Concepts and Academic Aptitude of Selected College man Classified According to Performance on Test of Physical Fitness.” Dissertation Abstracts International 30 (October1959):1423-A.
- Morgan, W.P.** “ Sports Personality : The Credulous-Skeptical Argument in Perspective in Sports Psychology - An Analysis of Athletic Behavior”. ( New York : Ed. W.traub, Movement Publication). Cited by Stan power, 'Psychological Assessment Procedures at a Track & Field National Event Squad Training Weekend', Sports Science Education by J. Watkins, Thomas Reilly and Les Burt wiz (London : E & FN Spon. 1986):181.
- Reiss, S., Sherman, M. & Wiltz, J.** “Trait Motivational Correlates of Athleticism”. Personality and Individual Differences, 30 :7(2001) : 1139-1145.
- Sinha, A.K.P.** “Psychological Dimensions of Sports : psychological Analysis of Sports Performance.” Souvenir ( Gwalior :L.N.C.P.E, 1986) : 2.
- Silva, John M. and Weinberg, Robert S.** Psychological Foundations of Sport . Champaign, Illinois: Human Kinetics Publishers, Ins., 1984.
- Solomon, G. B.** “Performance and Personality Impression Cues as Predictors of Athletic Performance: An Extension of Expectancy Theory”. International Journal of Sport Psychology, 32 : 1 (2001): 88-100.
- Yanada & Hirate H. and H.** “Personality Traits of Students who Dropped out their Athletic Clubs” Proceedings of the college of physical Education 5 (1970):145-146.

## **INVESTIGATION OF PARTICIPATION MOTIVATION IN WRESTLING**

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### **ABSTRACT**

*The study of human motivation is the study of human action and its determinants. It is concerned with the analysis of those factors, which initiate individual action and then direct it toward a particular end or goal. The purpose of the study was to investigate the motivational factors influencing participation of All India Inter-university level male and female Wrestlers. Five Hundred and Six (416 male and 90 female) wrestler representing their universities- All India Inter University Wrestling Competitions held at Rohtak (Haryana) during the session 2008-09 were subjects of this study. The age of subject ranged from 17 to 25 years of age. The Participation Motivation Questionnaire (PMQ) prepared by Gill. Gross and Huddleston to assess motives of children to be involved in sports was administered on all the subjects during inter-university wrestling competition (men & women). The descriptive statistics, mean ranking, and Analysis of Variance followed by Scheffe's test of Post-hoc comparisons .were computed. The statistical analysis of data indicated that to use the equipments and facilities, to win, to be physically fit, to goon to a higher level, to have some thing to do, were the important motive as expressed by inter university level male wrestlers for their participation in wrestling. Reasons pertaining to getting rewards, to goon to a higher level, gain recognition. to win, to be physically fit were the first five motives for inter university level female wrestlers for their indulgence in wrestling.*

**Keywords:** *Motives, Participation, Interuniversity level, Gender.*

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## INTRODUCTION

Motivation is a highly complex phenomenon. It refers to processes or conditions, which may be physiological or psychological, innate or acquired, internal or external to the organism which determine or describe how, or in respect of what behaviour is initiated, maintained, guided, selected, or terminated (Chakraborty 1998). Motivation in general refers to the intensity and direction of behavior, the direction of behavior indicates whether an individual approaches or avoids a particular situation, and the intensity of behavior relates to the degree of effort put forth to accomplish the behavior (Singer, 1993).

An athlete's level of motivation results from the interaction of personal factors such as one's personality, needs motives and situational factors such as the importance of the game or event, one's opponent and the approach utilized by one's coach. Thus to maintain and increase motivation in young athletes, it implies that the athlete's motives for participation should be recognized and that the athletic situation should be structured to fulfill these motives.

Motivation can be referred to the general level of arousal to action in an individual. The motives that an individual possesses, then, become the specific condition attached to particular course of action and their consequences that result from this arousal. The motive a person has for something, then, is the tendency within him either to do that something or not to do it. A tendency is a psychological entity that determines a person's thoughts, feelings, and actions directed toward goals and/or certain kinds of behavior. A motive then, can be defined as a latent, relatively stable personality characteristic which causes a person to be either attracted or repulsed by the consequences of particular courses of action, it is a tendency within the person directing his thoughts, feelings, and actions toward the service of goals or functions. (Alderman, 1976)

Understanding the major motives that young athletes have for sports participation is a topic of central importance for both the coach and the sport psychologist. It is unfortunate, then, that in the past most individuals interested in the area had to rely solely on conjecture and/or past experiences to explain why young athletes choose to participate, recently however a number of investigators have begun to identify and examine the major objectives young athletes have for participating in competitive sports programs, in fact, determining the reasons that motivate children to participate in sport has been reorganized as one of the most critical areas of youth sport (Stern, 1990: Weiss & Chaumonton, 1992). The reasons why individuals decide to participate in an achievement activity certainly constitute an important component of the subjective meanings of that activity (Maehr. Bras-kamp 1986).

Skubic (1956) was one of the first to examine such participation motives in young athletes. She examined the attitudes of players parents, and teachers toward youth baseball competition and found that getting acquainted with other boys, having fun, keeping out of mischief, developing sportsmanship and improving playing skills were among the reasons given for participation. Similarly, in a survey of 289 youth league football players. Giffune. (1989) found that players said they derived values from participation that included learning the game, conditioning, sportsmanship, having fun, team work, and forming friendships.

A number of conclusions can be derived from the research on participation motives of young athletes. First, young athletes have diverse motives for participating in sports they may want to have fun, seek affiliation, demonstrate power, improve skills, pursue excellence, exhibit aggression, have something to do, experience thrills or excitement, be independent, receive

rewards, fulfill parental expectations, and win. Moreover, most young athletes have not one but several motives for participation. Second, of the various motives identified for participation, those consistently rated as most important are improving skills, having fun, being with friends, making new friends, experiencing thrill or excitement, achieving success or winning, and developing fitness. Third, gender differences have been found in participation motives of young athletes. Females for example rate fun and friendship as more important motives than males do. Although no gender differences emerged on the achievement or excellence items. Fourth, a number of sports, experience, and age difference also showed up in participation motives but no consistent patterns emerged (Silva & Robert, 1984).

The purpose of the study was to investigate the motivational factors influencing participation of All India Inter-university level male and female Wrestlers. It was also hypothesized that the male and female wrestlers will differ significantly on their perception of motivational factors for competition.

## **METHODOLOGY**

### **Selection of Sample**

Five Hundred and Six (416 male and 90 female) wrestler representing their universities- All India Inter University Wrestling Competitions held at Rohtak (Haryana) during the session 2008-09 and volunteered to participate in the study were subjects of this study. The age of subject ranged from 17 to 25 years of age with mean age of 17 to 25 years for boys and 17 to 25 years for girls.

### **Instrumentation**

The participation motivation questionnaire prepared by Gill, Gross and Huddleston (1983) consists of 30 items reflecting possible reasons for taking part in a sports (e.g. want to improve my skill) and was adapted by making minor changes to the wording of some items (without altering the meanings) to reflect the sport of wrestling for example "my parents and close friends want me to play wrestling" subjects were requested to indicate on a 3 point Likert-type scale (1=not at all important, 2=some what, important, and 3= very important) the relative value of each motive influencing their participation in wrestling. The authors had identified eight factors. Factor 1 included items that seemed to represent achievement or status motivations i.e. to win, to feel important, to do some things, I am good at etc. Factor 2 included three team oriented reasons. Factor 3 included, fitness oriented reasons (to stay in shape, be physically fit, to get exercise). Factor 4 included items like to release tension, something to do, to travel, to get out of house). Factor 5 included three miscellaneous reasons (parents/close friends, coaches and equipment/facilities were considered situational factors. Factor 6 skill development-included, items like to improve skills, to learn new skills to new go on to a higher level. Factor 7 had two friendship items (to be with friends, to make new friends). Factor 8 fun-included items/reasons that represented having fun, excitement, and action. This inventory has been widely used in sports setting to investigate the reasons for participation in sports. The authors have established the reliability and validity of the original questionnaire.

In addition to provide information on involvement in the game of wrestling, and number of days and hours of training per week, the Participation Motivation Questionnaire (PMQ) prepared by Gill, Gross and Huddleston to assess motives of children to be involved in sports was administered on all the subjects during inter-university wrestling competition (men & women) for the session 2008-09 held at Rohtak.

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### Administration of Questionnaire

In order to ensure full co-operation from the subjects, the scholar had a meeting with them in presence of their respective coaches and managers, the purpose of the study was explained to them and doubts if any were clarified. All the subjects voluntarily extended their full co-operation and the coaches of respective teams ensured that the subjects were made available for the collection of data.

### Statistical Analysis

The descriptive statistics and mean ranking were used to rank the reasons for participation in wrestling for boys and girls and to identify general categories of motives for participation in wrestling. Analysis of variance (ANOVA) was computed using mean scores obtained on eight factors as dependent variable to examine the significance of difference among motives of participation in wrestling for both the groups separately. Which was followed by Scheffe's test of Post-hoc comparisons.

## RESULTS AND DISCUSSION

To examine difference in participation motivation mean factor scores were calculated separately for male and female wrestlers. The mean and standard deviation for different factors has been presented in Table 1

**TABLE 1**  
**MEAN AND SD OF FACTORS SCORES OF REASONS FOR PARTICIPATION IN**  
**WRESTLING AS PERCEIVED BY INTER UNIVERSITY LEVEL MALE AND**  
**FEMALE WRESTLERS**

| S.NO. | Factors            | Gender | N   | Mean | SD   |
|-------|--------------------|--------|-----|------|------|
| 1.    | Achievement/Status | Male   | 416 | 2.78 | .281 |
|       |                    | Female | 90  | 2.71 | .555 |
| 2.    | Team Work          | Male   | 416 | 2.71 | .378 |
|       |                    | Female | 90  | 2.61 | .601 |
| 3.    | Fitness            | Male   | 416 | 2.81 | .318 |
|       |                    | Female | 90  | 2.74 | .587 |
| 4.    | Energy Release     | Male   | 416 | 2.67 | .318 |
|       |                    | Female | 90  | 2.48 | .554 |
| 5.    | Others             | Male   | 416 | 2.81 | .291 |
|       |                    | Female | 90  | 2.63 | .654 |
| 6.    | Skill              | Male   | 416 | 2.82 | .305 |
|       |                    | Female | 90  | 2.74 | .533 |
| 7.    | Friends            | Male   | 416 | 2.56 | .433 |
|       |                    | Female | 90  | 2.31 | .603 |
| 8.    | Fun                | Male   | 416 | 2.59 | .386 |
|       |                    | Female | 90  | 2.54 | .558 |

Analysis of variance (ANOVA) was used to determine differences among mean scores of different factors of reasons for participation in wrestling for male and female wrestlers and data pertaining to this has been present in Table 2.

**TABLE 2**  
**ANALYSIS OF VARIANCE OF MEAN FACTORS SCORES OF DIFFERENT**  
**FACTORS OF REASONS OF PARTICIPATION IN WRESTLING**

| Gender | Source of Variance | df   | Sum of Squares | Mean Square | F-ratio |
|--------|--------------------|------|----------------|-------------|---------|
| Male   | Between Groups     | 7    | 29.54          | 4.22        | 36.24*  |
|        | Within Groups      | 3320 | 386.59         | 0.12        |         |
|        | Total              | 3327 | 416.14         |             |         |
| Female | Between Groups     | 7    | 13.96          | 1.99        | 5.91*   |
|        | Within Groups      | 712  | 240.44         | 0.34        |         |
|        | Total              | 719  | 254.40         |             |         |

\*Significant at .05 level  $F(7, 3320) = 2.01$  (Males);  $F(7, 712) = 2.01$  (Females)

Data in Table 3 indicated that there was significant differences among various factors of participation in wrestling as expressed by male and female Inter University level Wrestlers as the F-ratio of 36.24 and 5.91 were more than the required value to be significant at .05 level for male and female wrestlers respectively. As the obtained F-ratios were found significant, Scheffe's Test of Post hoc comparisons was applied to find out the significant of difference between ordered paired factor means for male and female wrestler separately and the data pertaining to this has been presented in Table 3 and 4.

**TABLE 3**  
**SIGNIFICANCE OF DIFFERENCE BETWEEN ORDERED PAIRED MEAN FACTOR**  
**SCORES OF DIFFERENT FACTORS OF REASONS OF PARTICIPATION IN**  
**WRESTLING AS EXPRESSED BY INTER-UNIVERSITY LEVEL**  
**FEMALE WRESTLERS**

| Ach/Status | Team work | Fitness | Energy release | Other | Skill | Friends | Fun  | MD    | CI   |
|------------|-----------|---------|----------------|-------|-------|---------|------|-------|------|
| 2.71       | 2.61      | -       | -              | -     | -     | -       | -    | 0.10  | 0.33 |
| 2.71       | -         | 2.74    | -              | -     | -     | -       | -    | 0.03  |      |
| 2.71       | -         | -       | 2.48           | -     | -     | -       | -    | 0.23  |      |
| 2.71       | -         | -       | -              | 2.63  | -     | -       | -    | 0.08  |      |
| 2.71       | -         | -       | -              | -     | 2.74  | -       | -    | 0.03  |      |
| 2.71       | -         | -       | -              | -     | -     | 2.31    | -    | 0.40* |      |
| 2.71       | -         | -       | -              | -     | -     | -       | 2.54 | 0.17  |      |
| -          | 2.61      | 2.74    | -              | -     | -     | -       | -    | 0.13  |      |
| -          | 2.61      | -       | 2.48           | -     | -     | -       | -    | 0.13  |      |
| -          | 2.61      | -       | -              | 2.63  | -     | -       | -    | 0.02  |      |
| -          | 2.61      | -       | -              | -     | 2.74  | -       | -    | 0.13  |      |
| -          | 2.61      | -       | -              | -     | -     | 2.31    | -    | 0.30  |      |
| -          | 2.61      | -       | -              | -     | -     | -       | 2.54 | 0.07  |      |
| -          | -         | 2.74    | 2.48           | -     | -     | -       | -    | 0.26  |      |
| -          | -         | 2.74    | -              | 2.63  | -     | -       | -    | 0.11  |      |

TABLE 3 (Continued)

| Ach/Status | Team work | Fitness | Energy release | Other | Skill | Friends | Fun  | MD    | CI   |
|------------|-----------|---------|----------------|-------|-------|---------|------|-------|------|
| -          | -         | 2.74    | -              | -     | 2.74  | -       | -    | 0.00  | 0.33 |
| -          | -         | 2.74    | -              | -     | -     | 2.31    | -    | 0.43* |      |
| -          | -         | 2.74    | -              | -     | -     | -       | 2.54 | 0.20  |      |
| -          | -         | -       | 2.48           | 2.63  | -     | -       | -    | 0.15  |      |
|            | -         | -       | 2.48           | -     | 2.74  | -       | -    | 0.26  |      |
| -          | -         | -       | 2.48           | -     | -     | 2.31    | -    | 0.17  |      |
| -          | -         | -       | 2.48           | -     | -     | -       | 2.54 | 0.06  |      |
| -          | -         | -       | -              | 2.63  | 2.74  | -       | -    | 0.11  |      |
| -          | -         | -       | -              | 2.63  | -     | 2.31    | -    | 0.32  |      |
| -          | -         | -       | -              | 2.63  | -     | -       | 2.54 | 0.09  |      |
| -          | -         | -       | -              | -     | 2.74  | 2.31    | -    | 0.43* |      |
| -          | -         | -       | -              | -     | 2.74  | -       | 2.54 | 0.20  |      |
| -          | -         | -       | -              |       | -     | 2.31    | 2.54 | 0.23  |      |

\*Significant at .05 level

It is evident from table-3 that there were significant differences between mean factor scores of achievement/status and friends (.40); between fitness and friends (0.43); and between skill and friends (0.43); As these mean differences were higher than the C.I. (0.33); to be significant at .05 level.

On the other hand the mean difference between mean factor score of Achievement/status and Team work (0.10); between achievement/status and fitness (0.03); between achievement/status and energy release (0.23); between achievement/status and others (0.08); between achievement/status and skill (0.03); between achievement/status and fun (0.17); between team work and fitness (0.13); between team work and energy release (0.13); between team work and others (0.02); between team work and skill (0.13); between team work and friends (0.03); between team work and fun (0.07); between fitness and energy release (0.26); between fitness and others (0.11); between fitness and skill (0.00); between fitness and fun (0.20); between energy release and others (0.15); between energy release and skill (0.26); between energy release and friends (0.17); between energy release and fun (0.06); between others and skill (0.11); between others and friends (0.32); between others and fun (0.09); between skill and fun (0.2); between friends and fun (0.23); were insignificant. As these differences were less than the C.I. (0.33), to be significant at .05 level.

**TABLE 4**  
**SIGNIFICANCE OF DIFFERENCE BETWEEN ORDERED PAIRED MEANFACTOR**  
**SCORES OF DIFFERENT FACTORS OF REASONS OF PARTICIPATION IN**  
**WRESTLING AS EXPRESSED BY INTER-UNIVERSITY LEVEL**  
**MALE WRESTLERS**

| Ach/Status | Team work | Fitness | Energy release | Other | Skill | Friends | Fun  | MD    | CI   |
|------------|-----------|---------|----------------|-------|-------|---------|------|-------|------|
| 2.78       | 2.71      | -       | -              | -     | -     | -       | -    | 0.07  | 0.09 |
| 2.78       | -         | 2.81    | -              | -     | -     | -       | -    | 0.03  |      |
| 2.78       | -         | -       | 2.67           | -     | -     | -       | -    | 0.11* |      |
| 2.78       | -         | -       | -              | 2.81  | -     | -       | -    | 0.03  |      |
| 2.78       | -         | -       | -              | -     | 2.82  | -       | -    | 0.04  |      |
| 2.78       | -         | -       | -              | -     | -     | 2.56    | -    | 0.22* |      |
| 2.78       | -         | -       | -              | -     | -     | -       | 2.59 | 0.19* |      |
| -          | 2.71      | 2.81    | -              | -     | -     | -       | -    | 0.10* |      |
| -          | 2.71      | -       | 2.67           | -     | -     | -       | -    | 0.04  |      |
| -          | 2.71      | -       | -              | 2.81  | -     | -       | -    | 0.10* |      |
| -          | 2.71      | -       | -              | -     | 2.82  | -       | -    | 0.11* |      |
| -          | 2.71      | -       | -              | -     | -     | 2.56    | -    | 0.15* |      |
| -          | 2.71      | -       | -              | -     | -     | -       | 2.59 | 0.12* |      |
| -          | -         | 2.81    | 2.67           | -     | -     | -       | -    | 0.14* |      |
| -          |           | 2.81    | -              | 2.81  | -     | -       | -    | 0.00  |      |
| -          | -         | 2.81    | -              | -     | 2.82  | -       | -    | 0.01  |      |
| -          | -         | 2.81    | -              | -     | -     | 2.56    | -    | 0.25* |      |
| -          | -         | 2.81    | -              | -     | -     | -       | 2.59 | 0.22* |      |
| -          | -         | -       | 2.67           | 2.81  | -     | -       | -    | 0.14* |      |
|            | -         | -       | 2.67           | -     | 2.82  | -       | -    | 0.15* |      |
| -          | -         | -       | 2.67           | -     | -     | 2.56    | -    | 0.11* |      |
| -          | -         | -       | 2.67           | -     | -     | -       | 2.59 | 0.08  |      |
| -          | -         | -       | -              | 2.81  | 2.82  | -       | -    | 0.01  |      |
| -          | -         | -       | -              | 2.81  | -     | 2.56    | -    | 0.25* |      |
| -          | -         | -       | -              | 2.81  | -     | -       | 2.59 | 0.22* |      |
| -          | -         | -       | -              | -     | 2.82  | 2.56    | -    | 0.26* |      |
| -          | -         | -       | -              | -     | 2.82  | -       | 2.59 | 0.23* |      |
| -          | -         | -       | -              |       | -     | 2.56    | 2.59 | 0.03  |      |

\*Significant at .05 level

It is evident from table-5 that there were significant differences between mean factor scores of achievement/status and energy release (0.11); between achievement/ status and friends (0.22); between achievement/status and fun (0.19); between team work and skill (0.11); between team work and friends (0.15); between team work and fun (0.12); between fitness and energy release (0.14); between fitness and friends (0.25); between fitness and fun (0.22); between energy release and others (-0.14); between energy release and skill (0.15); between energy release and friends (0.11); between others and friends (0.25); between others and fun (0.22); between skill and friends (0.26); between skill and fun (0.23); As these mean differences were higher than the C.I. (.09) to be significant at .05 level. On the other hand the mean differences between factor score of achievement/status and team work (0.07); between achievement/status and fitness (0.03); between achievement/status and others (0.03); between achievement/status and skill (0.04); between team work and fitness (0.10); between team

work and energy release (0.04); between team work and others (0.1); between fitness and others (0.0); between fitness and skill (0.01); between energy release and fun (0.08); between others and skill (0.01); between friends and fun (0.03) were statistically insignificant as the obtained mean differences were much less than the C.I. (0.09) to be significant at .05 level.

The last step in the analysis of response was to determine the relative importance of the 30 reasons. Mean importance ratings were calculated with very important scored as 3, somewhat important as 2, and not at all important as 1. Table 5 gives the mean importance ratings of each items for boys and girls

**TABLE 5**  
**RANK ORDER OF REASONS FOR PARTICIPATION IN WRESTLING AS**  
**EXPRESSED BY MALE AND FEMALE WRESTLERS**

| S.NO | Items                                                                | Rank order of boys | Rank order of girls |
|------|----------------------------------------------------------------------|--------------------|---------------------|
| 1.   | I want to improve my skills                                          | 12                 | 6                   |
| 2.   | I want to be with my friends                                         | 26                 | 21                  |
| 3.   | I like to win                                                        | 2                  | 3                   |
| 4.   | I want to get rid of energy                                          | 25                 | 20                  |
| 5.   | I like to travel to training and Competition                         | 13                 | 9                   |
| 6.   | I want to stay in shape                                              | 15                 | 7                   |
| 7.   | I like the excitement                                                | 24                 | 17                  |
| 8.   | I like the team work                                                 | 22                 | 15                  |
| 9.   | My parents or close friends want me to play Wrestling                | 21                 | 15                  |
| 10.  | I want to learn new skill/things                                     | 9                  | 8                   |
| 11.  | I like to meet new friends                                           | 23                 | 16                  |
| 12.  | I like to do something. I am good at.                                | 11                 | 4                   |
| 13.  | I want to release tension                                            | 14                 | 14                  |
| 14.  | I like the rewards.                                                  | IS                 | 1                   |
| 15.  | I like to get exercise                                               | 8                  | 6                   |
| 16.  | I like to have something to do.                                      | 5                  | 3                   |
| 17.  | I like the action                                                    | 16                 | 7                   |
| 18.  | I like the team spirit                                               | 20                 | 13                  |
| 19.  | I like to get out of the house                                       | 27                 | 19                  |
| 20.  | I like to compete                                                    | 10                 | 11                  |
| 21.  | I like to feel important                                             | 18                 | 12                  |
| 22.  | I like being on a team or part of a club.                            | 17                 | 11                  |
| 23.  | I like the challenge                                                 | 6                  | 9                   |
| 24.  | I like to go on to a higher level                                    | 4                  | 1                   |
| 25.  | I want to be physically fit                                          | 3                  | 4                   |
| 26.  | I want to be popular                                                 | 7                  | 5                   |
| 27.  | I like the coaches or instructors                                    | 7                  | 7                   |
| 28.  | I want to gain status or recognition or to be noticed for what I do. | 19                 | 2                   |
| 29.  | I like to have fun                                                   | 28                 | 18                  |
| 30.  | I like to use the equipment or facilities                            | 1                  | 10                  |

Table 5 reveals that the first five reasons rated most highly by participants participating in wrestling were "I like to use the equipment or facilities", "I like to win", "I want to be physically fit", "I like to go on to a higher level", and "I like to have something to do". "I like to have fun", "I like to get out of the house", "I want to be with my friends", "I want to get rid of energy", and "I like the excitement" were rated as least important.

In case of girls, "I like the rewards", "I like to go on to a higher level", "I want to gain status or recognition or to be noticed for what I do", "I like to win", "I like to have something to do", "I want to be physically fit", "I like to do something. I am good at", "I want to be popular rated most highly. Where as, I want to be with my friends, I want to get rid of energy", "I like to get out of the house", "I like to have fun", "I like the excitement", were rated the least important reasons reported for participation in wrestling.

## DISCUSSION

Ranking of reasons for participation in wrestling as expressed by Inter University level male and female wrestlers indicated that reasons rated most highly (highly ranked five reasons) important were same to some extent with little difference in ranking. One significant difference was that male wrestlers considered "use of equipment or facilities" as most important reasons for participation in wrestling. Where as for female wrestlers this reason did not figure in important reasons for participation in wrestling. Female wrestlers considered "I like to go on to a higher level" as most important reasons for participation in wrestling. The reasons "I like to win", "Physical fitness", "I like to have something to do" were the important common reasons for their participation in wrestling, as expressed by Inter University level male and female wrestlers, "I want to be popular" was an additional reason given by the female wrestlers. Reasons of "I like to have fun", "to be with friends" and "get rid of energy" were considered least important reasons by both the groups. When these reasons were grouped into factors, male wrestler gave more importance to skill, others and fitness factors, Where as female wrestlers considered skill, fitness and achievement/status and energy release as important factors for participation in wrestling. Findings of this study positively support the findings of Vasudev, 2003, Yadav, 2005. The findings were in contrast to the findings of Gould, Feltz and Weiss (1985). Who found that fun, fitness, team work, skill improvement and excitement/challenge as major motives for competitive youth swimming

## CONCLUSIONS

Within the limitations of the present study following conclusions were drawn.

To use the equipments and facilities, to win, to be physically fit, to go on to a higher level, to have something to do, were the important motives as expressed by inter university level male wrestlers for their participation in wrestling.

Reasons pertaining to getting rewards, to go on to a higher level, gain recognition, to win, to be physically fit were the first five motives for inter university level female wrestlers for their indulgence in wrestling.

## PRACTICAL APPLICATION

These findings may be utilized by sports administrations and wrestling coaches to design and implement program that meet the participation motives of inter- university wrestlers in general and female wrestlers in particular.

Similar study may be undertaken with different levels of wrestlers and with players of other combative activities.

As study may be undertaken to understand the reasons as to why wrestling is not so popular in certain parts of India.

## REFERENCES

- Alderman R. B. & Wood, N. I. "An Analysis of Incentive Motivation in Young Canadian Athletes" Canadian Journal of Applied Sports Science 1 :7 (1976): 169-176.
- Chakraborty. Samiran. Behavior, motivation and Emotions in Sports Psychology/ Delhi: Sports Publications, 2000) pp. 24-29

- Gould, D., Feltz, D., & Weiss, M. R. (1985).** Motives for participating in competitive youth swimming. *International Journal of Sport Psychology*, 6, 126-140.
- Gill, D.L., Gross, G.B. and Huddleston, S.** "Participation Motivation in youth Sports" *International Journal of Sports Psychology* 14 (1983): 1-14
- Giflune, M. K.** "The Participation Motivation of High School Students/Athletes." Dissertation Abstracts International. 50 : 5 (Nov. 1989) : 1197.
- Maehr, M.L. and Braskamp, L.** The motivational factor: A Theory of personal investment. Lexington: Lexington Books 1986.
- Singer, R.N., Murphy, M., and Tennat, L. Keith.** Hand Book of Research on Sport Psychology. New York : McMillan Publishing Co; 1993.
- Stem, H. P. et.al.** "Young Children in Recreational Sports" *Clinical Pediatrics*. 29(1 990):89-94.
- Skubic, E.** " Studies of Little and Middle League Baseball" Research Quarterly (1956) 26: 97-110
- Silva, John M. and Weinberg, Robert S.** Psychological Foundations of Sport . Champaign, Illinois: Human Kinetics Publishers, Ins., 1984.
- Vasudev. D.** "An Investigation of Reasons for Participation in Volleyball". Unpublished Master's Thesis, Rani Durgawati Vishwavidyalaya. Jabalpur 2003.
- Weiss, M. R., & Chaumeton, N. (1992).** Motivational orientations in sport. In T. Horn (Ed.), *Advances in sport psychology* (pp. 61-99). Champaign, IL: Human Kinetics
- Yadav, S.** "Investigation of Reasons for Participation in Badminton". Unpublished Ph.D.Thesis, Devi Ahilva Visliwavidyaluva. Indore 2005.